STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

PIT RIVER

WATER QUALITY STUDY

DECEMBER 1982

FOREWORD

The Pit River and its tributaries have been a vital source of water in Lassen, Modoc, and Shasta Counties for many years. As currently developed upstream from Shasta Lake, it constitutes about eighteen percent of the surface water supply in Shasta County, over thirty percent in Lassen County, and over forty percent in Modoc County.

The quality of the river's water has been monitored near Canby for more than fifteen years. The resulting data show great variation, and complaints have been received about discoloration, overabundance of algae, and unsightliness. This study was undertaken to investigate the river's water quality and its variation.

The information developed in this study is essential not only in managing this water source to maximize its beneficial uses, but also to plan for future conjunctive ground and surface water uses. It will be available to help develop definitive objectives for water quality control plans.

This report includes a brief overview of the area, its geology, climate, development, and water supply. It describes the unusual hydrologic conditions that prevail in the study area, summarizes water quality data, and sets forth findings and conclusions.

Albert J. Dolcini, Chief
Northern District

CONVERSION FACTORS

Quantity	To Convert from Metric Unit	To Customary Unit	Multiply Metric Unit By	To Convert to Metric Unit Multiply Customary Unit By
Length	millimetres (mm)	inches (in)	0.03937	25.4
	centimetres (cm) for snow depth	inches (in)	0.3937	2.54
	metres (m)	feet (ft)	3.2808	0.3048
	kilometres (km)	miles (mi)	0.62139	1.6093
Area	square millimetres (mm^2)	square inches (in^2)	0.00155	645.16
	square metres (m^2)	square feet (ft^2)	10.764	0.092903
	hectares (ha)	acres (ac)	2.4710	0.40469
	square kilometres (km^2)	square miles (mi^2)	0.3861	2.590
Volume	litres (L)	gallons (gal)	0.26417	3.7854
	megalitres	million gallons (10^6 gal)	0.26417	3.7854
	cubic metres (m^3)	cubic feet (ft^3)	35.315	0.028317
	cubic metres (m^3)	cubic yards (yd^3)	1.308	0.76455
	cubic dekametres (dam^3)	acre-feet (ac-ft)	0.8107	1.2335
Flow	cubic metres per second (m^3/s)	cubic feet per second (ft^3/s)	35.315	0.028317
	litres per minute (L/min)	gallons per minute (gal/min)	0.26417	3.7854
	litres per day (L/day)	gallons per day (gal/day)	0.26417	3.7854
	megalitres per day (ML/day)	million gallons per day (mgd)	0.26417	3.7854
	cubic dekametres per day (dam^3/day)	acre-feet per day (ac-ft/day)	0.8107	1.2335
Mass	kilograms (kg)	pounds (lb)	2.2046	0.45359
	megagrams (Mg)	tons (short, 2,000 lb)	1.1023	0.90718
Velocity	metres per second (m/s)	feet per second (ft/s)	3.2808	0.3048
Power	kilowatts (kW)	horsepower (hp)	1.3405	0.746
Pressure	kilopascals (kPa)	pounds per square inch (psi)	0.14505	6.8948
	kilopascals (kPa)	feet head of water	0.33456	2.989
Specific Capacity	litres per minute per metre drawdown	gallons per minute per foot drawdown	0.08052	12.419
Concentration	milligrams per litre (mg/L)	parts per million (ppm)	1.0	1.0
Electrical Conductivity	microsiemens per centimetre (uS/cm)	micromhos per centimetre	1.0	1.0
Temperature	degrees Celsius (°C)	degrees Fahrenheit (°F)	(1.8 X °C)+32	(°F−32)/1.8

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
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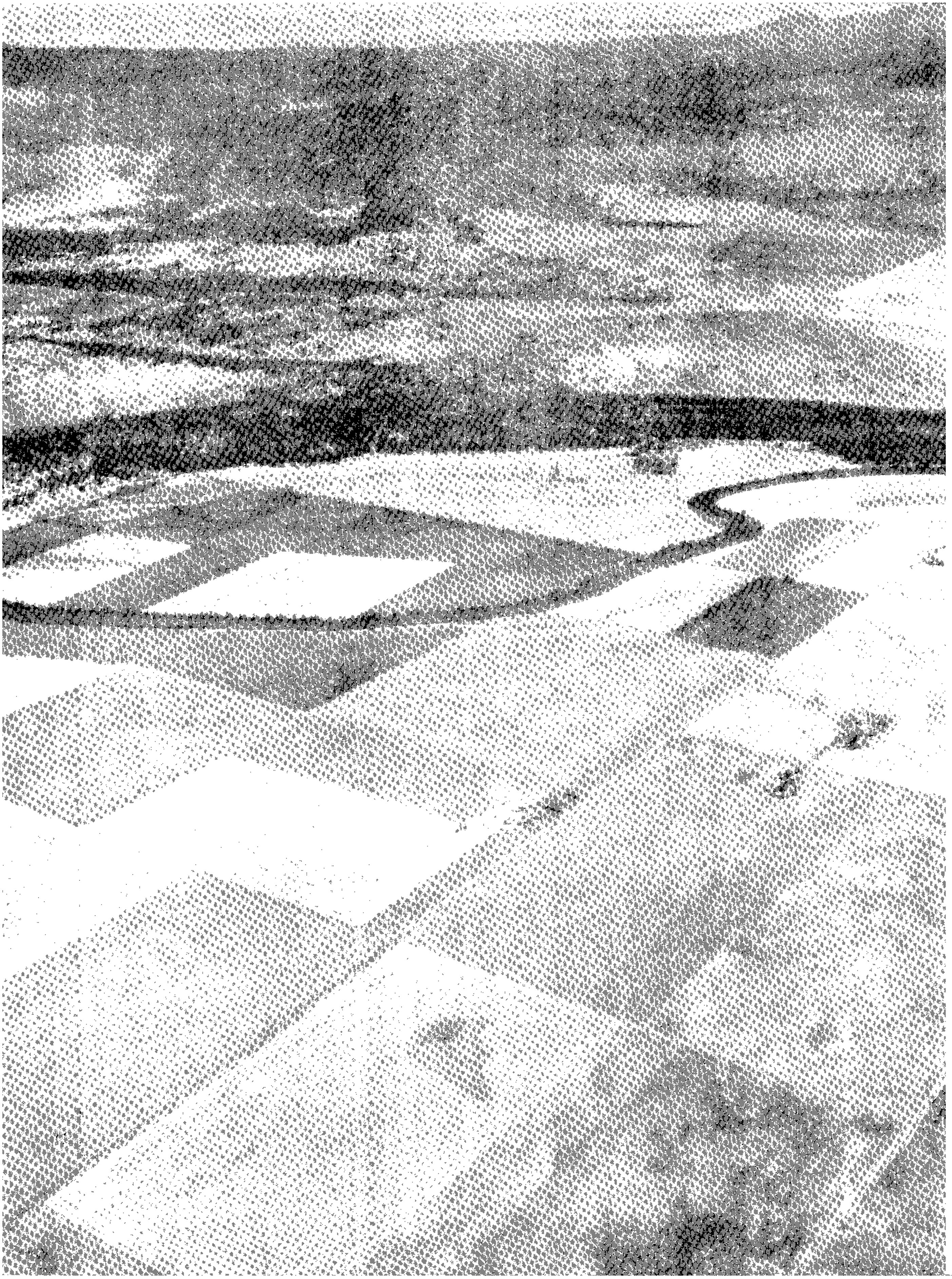


INTRODUCTION

This study was undertaken to expand our knowledge of the Pit River and its quality variations so that this important water supply can be properly managed and protected. The water quality of the Pit River has been monitored near Canby for 30 years and South Fork Pit River near Likely for 21 years. The resultant data have provided a valuable basis for planning this study and relating study period results to long-term conditions.

Although the monitoring records indicate that Pit River waters are good to excellent in mineral quality, problems related to water temperature, high levels of biological productivity, and aesthetics are apparent.

Scope

This investigation began with a review of historic water quality data and previous reports on the Pit River and its tributaries. The review showed that water quality problems are apparent at various locations throughout the river system but problems related to excessive productivity were prominent in Lake Britton and reaches of the Pit River in Fall River Valley and Big Valley.

As the sources of nutrients which sustain these high levels of productivity are within the problem areas or upstream, the investigation included Lake Britton and the upstream portion of the river. Field investigation started in the summer of 1977 and continued until 1980. Water quality surveys were run from spring through the fall so that seasonal variations could be established. Samples were taken during day and night periods to record diel quality variations.

To provide data that would show nutrient distribution throughout the system and indicate major sources, concentrations of nitrogen and phosphorous were measured each season at the sampling network stations. In addition to these macronutrients, measurements of the more common chemical and physical parameters were made frequently and selected samples were analyzed for trace metals. Benthic invertebrate samples were also collected at selection stations.

This report includes summaries of both the historic and new water quality data developed during this investigation. Only limited evaluations of the hydrologic and water quality characteristics of the Pit River are presented, but findings and conclusions are included in this report along with the description of the investigation and the methods used.

Area of Investigation

The reach of the Pit River included in this study extends from its headwater area above Alturas to Lake Britton and traverses lands in Modoc, Lassen, and Shasta Counties (Plate 1). The North and South Forks of the river bring the runoff from the mountain ranges of eastern Modoc County together at Alturas. The river flows westerly from there for about 75 kilometres (km) where it swings to the south for about 65 km before it flows westerly again for a distance of about 50 km to Lake Britton. In completing this course, the river flows across three ground water basins.

Geology

The area of investigation lies completely within the Modoc Plateau Geomorphic Province. The Modoc Plateau consists of a thick accumulation of lava flows and tuff beds with an interlayering of lake sediments, soils, and stream deposits. The highland areas throughout the plateau consist of Tertiary and Quaternary period volcanics. The larger valleys of the plateau, which are structural depressions in the volcanic rocks, generally contain sedimentary deposits. Although these sediments are usually fine-grained and provide limited ground water storage, underlying or adjacent water-bearing volcanic rocks often increase the storage so that ground water development has been practical in these valleys.

Climate

As moisture-laden air from the Pacific Ocean moves inland, it crosses the coastal mountain ranges of Northern California and the Cascade Range. As the marine air ascends the western faces of the mountains, much of its moisture condenses and falls as rain or snow, leaving less moisture for the Modoc Plateau to the east. The mean annual precipitation along the crest of the Big Valley and Warner Mountains approaches 90 centimetres (cm), but over most of the plateau it is less than 45 cm. Along the western edge of the plateau, rainfall is also greater.

The climate in this region is semiarid, with warm, dry summers and cold, wet winters. About 70 percent of the annual precipitation falls between October and March, much of it snow. In the vicinity of Alturas, the annual mean temperature is about 8.2° C. January is the coldest month, with a mean temperature -1.9° C. The average daily maximum for January is 4.5° C. July is the warmest month, with a mean of about 19° C, an average daily minimum of 6.7° C, and an average daily maximum of 31.2° C.

Development

Although several early emigrant trails passed along or over the Pit River, it was not until the end of the Modoc Indian Wars in 1873 that settlers stayed in the area in significant numbers. The productive grasslands in the valleys along the Pit River made the area ideal for cattle. Most of the development took place where water could be diverted from the Pit River, or tributary streams, and used to expand the natural pasture's increasing production. The cattle industry has maintained its importance in the region, and the major crops today are still meadow pasture and alfalfa.

Production of forest products is of major importance to the economy of the area and played an important role in its development. Most of the population centers throughout the basin developed in conjunction with sawmills. Timber harvested is predominantly ponderosa pine but also includes true firs and incense cedar. Mining of nonmetal minerals, such as sand and gravel, has also contributed to the economy.

Recreational activities have increased throughout the region and influenced development and need for services. Bountiful wildlife attracts visitors for hunting and fishing, while opportunities for hiking, horseback riding, or enjoying the scenic beauty bring others.

About 15,000 people live within the study area, most of them in small towns and communities scattered throughout the watershed. The largest community is the City of Alturas which is the Modoc County seat. With a population of about 3,000, Alturas is located near the eastern edge of the Pit River drainage and is the area's trade center supported by agricultural and wood product associated activities. Transportation and governmental activities also contribute to the local economy.

Three major highways--U. S. 299, U. S. 395, and State Route 139--provide access to the Pit River watershed, and two of these intersect in Alturas. These roads not only provide avenues for movement of products to outside markets but also bring tourists and recreationists to the region.

Water Supply

The mean annual flow of the Pit River near Canby is about 220 000 cubic dekametres (dam^3), while downstream at Lake Britton it is about 2 400 000 dam^3. This large increase in flow results from tributary surface and subsurface inflows that occur mostly downstream from Big Valley.

Most of the streamflow occurs from March through July, while water demands are greatest from May through September. In the valleys along the upper Pit River, with their semiarid climate, shortages of water in July, August, and September posed problems for early settlers, and numerous reservoirs were built around the turn of the century to provide water in the summer and fall.

Even with reservoir storage, competition for the limited surface waters resulted in battles over water rights, and in the 1930s, rights to portions of the Pit River and many of its tributaries were defined in court decrees. In six areas within this drainage, the Department of Water Resources is now responsible for the distribution of water according to court decrees.

Ground water is increasingly used in the Pit River basins to supplement limited and extensively used surface water supplies. Little surface water remains for use in the upper portions of the Pit River watershed; future requirements will have to be met by additional ground water use.

Waste Discharge

Throughout the Pit River drainage, major point-source waste discharges have been limited to lumber mill wastes and domestic wastes from the City of Alturas and the smaller communities of Adin, Bieber, and Burney. Such wastes are typically high in organics, exert oxygen demands in the receiving waters and are sources of phosphorus, nitrogen, and other nutrients. They also contain chlorides, sulfates, and dissolved solids which can add to the levels found in the receiving waters.

Additional domestic wastes are discharged through cesspools or septic tanks and leach fields in communities without sewers and at scattered locations over the watershed. As populations have remained low, domestic wastes probably have had little impact on the mineral quality of the Pit River.

The California Water Quality Control Board, Central Valley Region, has adopted waste discharge requirements for the waste disposal from the lumber mill operations and impacts from these sources have been minimal.

Nonpoint sources associated with agricultural and timber harvest activities have probably had a greater impact on the Pit River than point sources. These activities often increase the suspended sediment loads in nearby surface waters, and materials washed into the streams often increase nutrient levels and discolor the receiving waters.

HYDROLOGY

The hydrology of the Pit River Basin is affected by the diverse areal and seasonal distribution of precipitation, the influence of snowmelt, different geologic and geographic settings, and the use of surface and ground waters.

Precipitation

The Pit River watershed within the study area has a mean annual precipitation of about 55 cm (see "Climate"). In an average year, most of the precipitation occurs between October and May. The rest usually comes as summer storms.

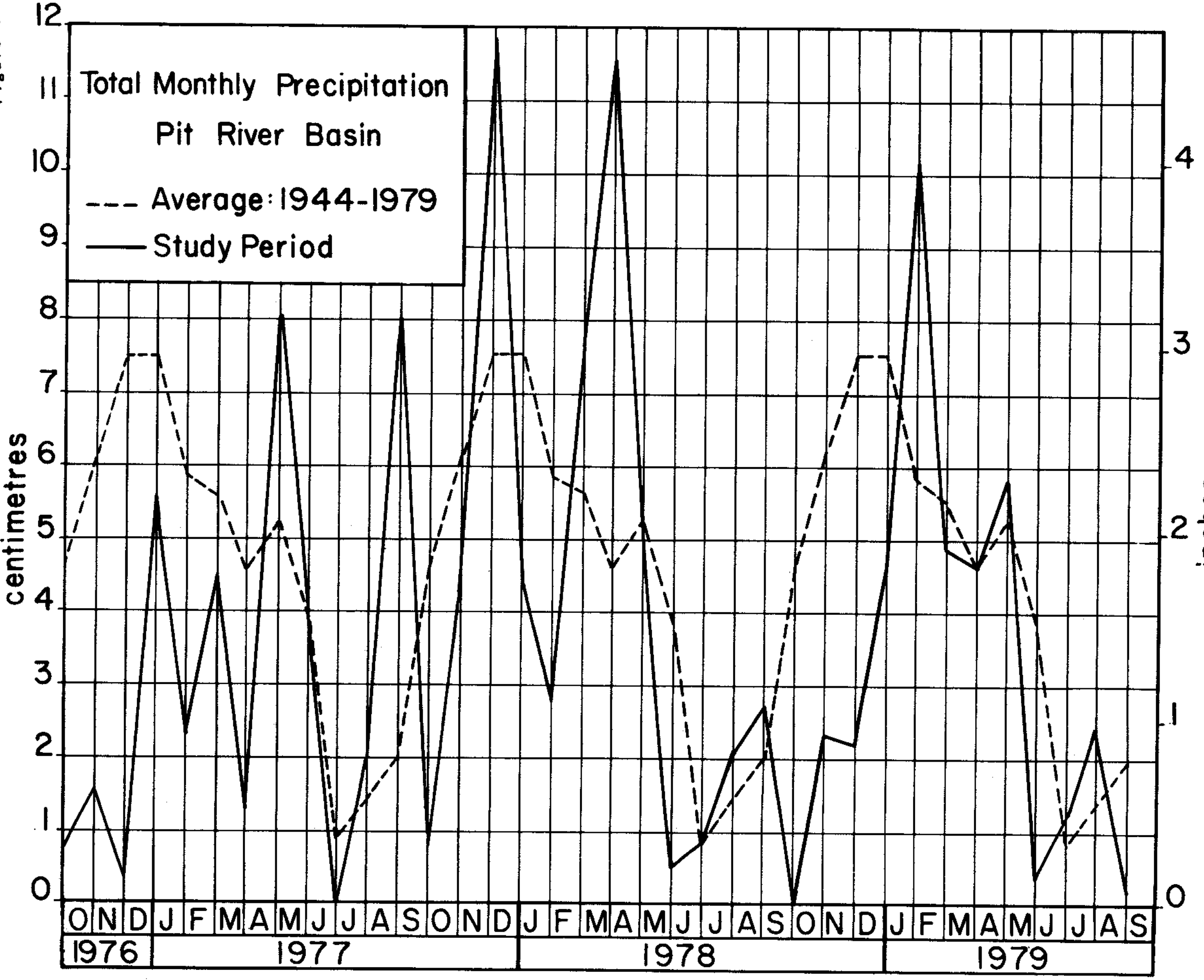
Precipitation patterns were abnormal during the study period (see Figure 1). During the 1977 and 1979 water years, precipitation was only about 70 percent of normal. In the 1978 water year, the total precipitation was near normal, but it was exceptionally heavy in December and April.

Runoff

The annual natural runoff has been estimated to be about 295 000 dam^3 in the Pit River near Canby, 500 000 dam^3 near Bieber, and over 1 600 000 dam^3 at Fall River Mills. The large downstream increase of runoff is due not only to increasing tributary area, but also to runoff from areas of higher precipitation in the western and northern fringes of the study area.

The mean annual flow in the Pit River near Canby (A1 1680.00) during the last thirty years is less than natural runoff would have been, due to upstream development and depletions. At Lake Britton the mean annual flow has been about 2 400 000 dam^3. The flow characteristics near Canby are shown in Figure 2 and reflect the important influences of snowmelt and surface water storage. Although less than 20 percent of the annual precipitation falls from March through June, over 55 percent of the annual runoff occurs during this period.

Figure 1


Total Monthly Precipitation
Pit River Basin
Average: 1944-1979
Study Period
centimetres
0
1
2
3
4
5
6
7
8
9
10
11
12
inches
0
1
2
3
4
O
N
D
J
F
M
A
M
J
J
A
S
O
N
D
J
F
M
A
M
J
J
A
S
O
N
D
J
F
M
A
M
J
J
A
S
1976
1977
1978
1979

The runoff pattern at stations below Fall River Mills, although similar, shows more uniform flow, as they are normally augmented during the summer and fall by ground water inflows. Flows during 1977-79 were extremely low in the Pit River, as shown in Figure 2. Runoff at Canby (A1 1680.00) was about 25 percent of normal during the 1977 water year, 68 percent in 1978, and 61 percent in 1979.

River Profile

The Pit River has a steep gradient above Alturas, but as shown in Figure 3, from Alturas (A1 1850.00) to Bieber (A1 1400.00) its gradient is greatly reduced. From Bieber to Pittville (A1 1270.00) it is very steep, about 7.5 m/km; it moderates again between Pittville and Lake Britton (A1 1185.00). In the two steeper reaches of the river, the water velocities are generally high, while flows in the flatter reaches are characterized by lower velocities. This is reflected in the stream-bottom materials, which are typically sand, gravel, cobbles, and boulders in the steeper reaches and small gravels, sands, and silts in the flatter reaches.

Water Use

Pit River waters are used extensively, and it is estimated that more than 400 000 dam^3 are taken from the river and its tributaries annually for irrigation. The major crops are meadow pasture, alfalfa, and grain. When irrigation demands are greatest in the summer, flows in the river are minimal so ground waters are often used as a supplemental supply.

Often in summer the entire flow of the river is diverted for irrigation in Big Valley, but effluent ground water and irrigation return flows usually reestablish flow in the river channel before it reaches Fall River Valley.

Less than 4 000 dam^3 are used annually for municipal and industrial needs in this basin, and much of this comes from wells. As additional water demands develop in the basin, it will be necessary to develop additional ground water supplies or provide additional surface water storage.

Figure 2

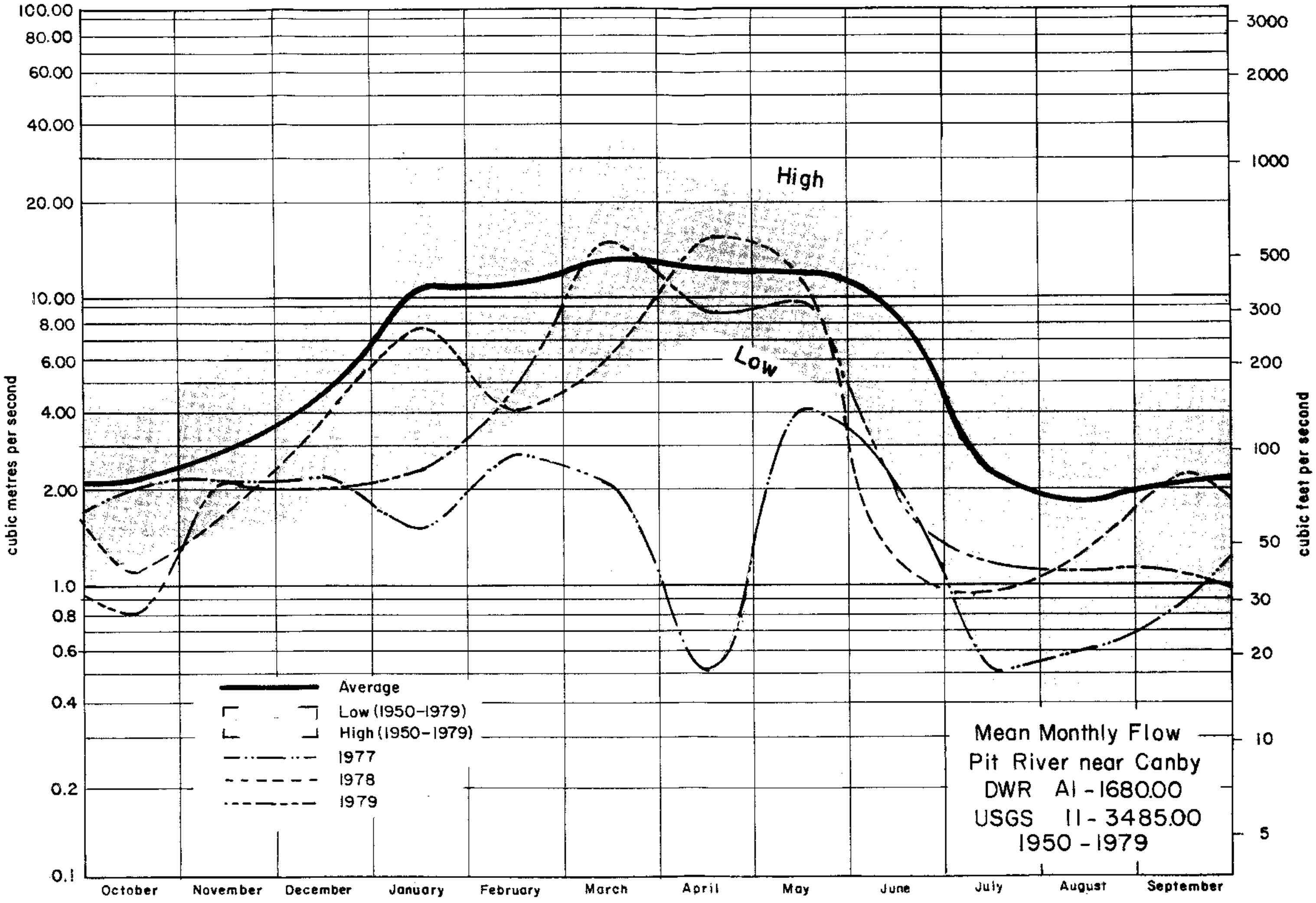
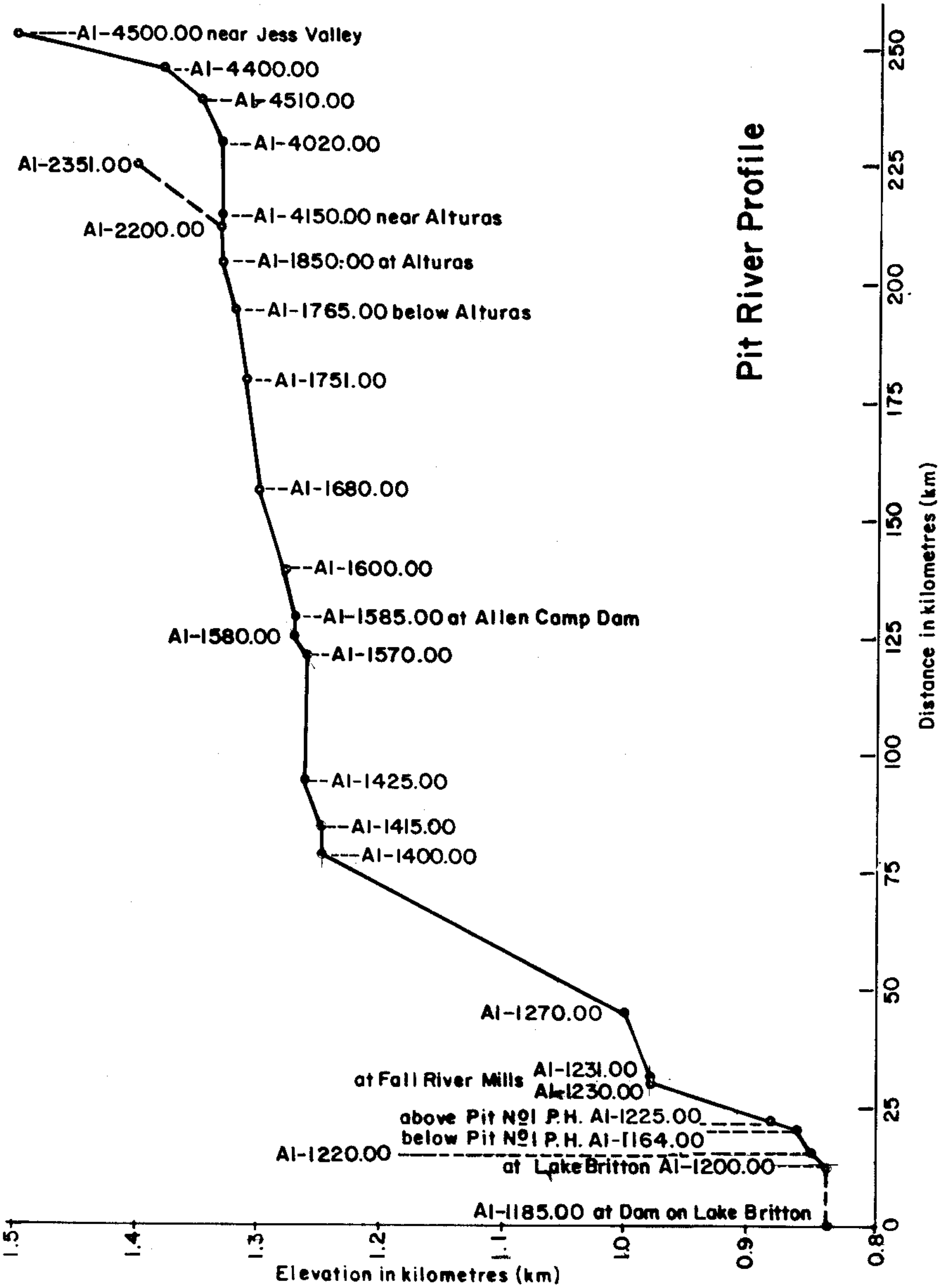

100.00
80.00
60.00
40.00
20.00
10.00
8.00
6.00
4.00
2.00
1.0
0.8
0.6
0.4
0.2
0.1
cubic metres per second
3000
2000
1000
500
300
200
100
50
30
20
10
5
cubic feet per second
High
Low
October
November
December
January
February
March
April
May
June
July
August
September
Average
Low (1950-1979)
High (1950-1979)
1977
1978
1979
Mean Monthly Flow
Pit River near Canby
DWR A1-1680.00
USGS 11-3485.00
1950 - 1979

Figure 3



Pit River Profile

WATER QUALITY

To determine the quality of the Pit River's waters in the reach between Lake Britton and Alturas, sampling surveys were conducted from the spring of 1977 through the summer of 1979. The twelve stations shown as study stations in Plate 1 were sampled periodically to determine seasonal and diel variations. Several supplemental stations on tributary streams where historic data are available or which were sampled during the study are also shown in Plate 1. Measurements were made to determine the chemical, physical, and biological characteristics of this important water resource. The following sections present information on the water quality measurements, sampling procedures, and analytical methods.

Water Quality Parameters

The suitability of water for beneficial use is determined by its quality, which can be divided into three categories: chemical, physical, and biological. Historically, chemical and physical characteristics have been of primary concern, but increased emphasis on environmental concerns has promoted greater interest in biological quality, which is more costly and difficult to determine.

Chemical

Precipitation, as it reaches the earth, is an excellent solvent. It contains dissolved gases, such as carbon dioxide and oxygen, but normally contains few dissolved solids. As water passes through the hydrologic cycle, either on the surface or through the ground, it dissolves minerals from the materials it contacts. The amount and type of minerals dissolved reflect the composition of these materials and the hydrologic conditions governing the rate of water movement. Often, more salts and pollutants may be added by sewage, industrial wastes, and irrigation return flows. These dissolved substances can determine water's suitability for various beneficial uses.

The overall chemical quality can be obtained by determining and summing the concentrations of individual ions in a water. A measure of the total dissolved solids (TDS) can also be obtained by filtering a water sample, drying it, and weighing the residue. A third technique measures the electrical conductivity (EC) of the water sample, as that value can be related to the ionic content of the water. Ions commonly found in natural waters and most often looked for in laboratory analysis include calcium, magnesium, sodium, potassium, bicarbonate, carbonate, sulfate, chloride, and boron. Each of these is important to one or more beneficial uses.

Another important chemical factor is pH, which is a measure of the water's acidity (hydrogen ion content). The pH scale ranges from zero to fourteen, with a value of seven being neutral. Most natural waters have a pH in the 6.5 to 8.5 range, while an acid, such as lemon juice, has a pH of about 2, and household ammonia has a pH of about 12.

Alkalinity is a measure of a water's ability to withstand changes in pH and is due to the carbon dioxide, bicarbonate, and carbonate equilibrium in the water. This buffering is important because it dampens pH fluctuations that might occur due to waste discharges or intense algal growth. It also serves as a source of inorganic carbon for plant growth.

Water contains varying amounts of certain elements which are essential to biologic productivity and are referred to as nutrients. Such metals as iron, copper, molybdenum, etc., are needed in trace amounts and are called micronutrients. Carbon, nitrogen, and phosphorus are needed in larger quantities and are referred to as macronutrients. The two elements most often considered limiting to primary productivity in aquatic systems (if there were more of that element present there would be more growth) are nitrogen and phosphorus.

Nitrogen is found in water in the form of nitrate, nitrite, and ammonium ions, ammonia gas, or as part of nitrogen-bearing organic compounds. Most aquatic plants can use nitrate, ammonia, and perhaps simple organic nitrogen compounds.

Phosphorus is found in water as orthophosphates, polyphosphates, and organic phosphorus. Most forms are converted in nature to orthophosphates by bacterial action or hydrolysis, and this is the form used by organisms. Both orthophosphate and total phosphorus levels are generally included in nutrient determinations.

Dissolved oxygen (DO) is one of the most important components measured in water, as it is essential to aquatic plant and animal life. The amount of oxygen that dissolves in water is primarily a function of water temperature, air pressure (altitude), and dissolved mineral concentration. Natural aeration and oxygen from plant photosynthesis are the two most important sources of oxygen in surface waters. Dissolved oxygen is used in respiration by aquatic organisms and by biochemical demands created by decomposing organic materials. To maintain a healthy aquatic environment, DO levels should be near saturation for coldwater systems and above 5 milligrams per litre (mg/l) for warmwater systems.

Physical

Temperature and turbidity are important physical characteristics of water. Temperature greatly influences the suitability of a water for its beneficial use. The metabolisms of aquatic organisms respond to the temperature of their environment. (As a general rule, metabolic activity will approximately double with each 10° C increase in temperature, to the limit of the organism's range of tolerance.) Temperature also affects the solubility of gases and other substances in water, water density, and its viscosity. These factors are of great importance in aquatic environments.

Turbidity is the second important physical water quality characteristic often measured. Turbidity, or cloudiness, of water is caused by suspended matter, organic and inorganic, which obstructs the passage of light through the water. Highly turbid waters are unsightly and may pose a hazard for swimmers or other recreationists. As light penetration is restricted in turbid waters, turbidity can reduce biologic productivity and limit types of plants that can exist.

Biological

Although observations were made of many organisms during this investigation, only benthic macroinvertebrates were sampled and evaluated. The numbers and assemblage of benthic organisms are excellent indicators of the general health of a stream--its productivity and its water quality. Unlike fish, which can escape adverse conditions through their mobility, benthic organisms cannot, making bottom life forms especially suited for studies aimed at determining long-term aquatic conditions.

Sampling and Analytical Methods

Water samples were collected during this study from near the center of flow at each station. At low flows, samples were usually collected by wading, while at higher flows, samples were collected from bridges or by sampling devices thrown from the bank. Most samples were collected in plastic buckets, although in a few instances Van Dorn bottles and oxygen pots were used. Temperature, pH, DO, and EC measurements were usually made at the time of each visit, while water samples were collected for analysis at the Department's laboratory at Bryte.

Temperatures were measured with standard field thermometers whose calibrations had been checked in the laboratory. During the diel surveys, maximum-minimum thermometers were also placed in the river to verify the temperature variations during sampling visits.

Field pH was determined by using Hellige comparators with appropriate indicator solution and disk. Laboratory pH's were also run on selected samples with a calibrated glass electrode-type pH meter.

Dissolved oxygen levels were measured at the time of sampling using the modified Winkler technique. Field kits use fixing reagents in powdered form.

Electrical conductivity was measured on portable Beckman solubridges that had been checked on known solutions. Selected samples that were sent to the laboratory also had EC determinations made for quality control and to better define the TDS-EC relationship.

Turbidity samples were measured with a Hach Model 2100A turbidimeter which is a nephelometer-type instrument.

Samples for standard mineral (chemical) analysis were collected in sample-rinsed plastic bottles and transported to the Bryte laboratory for analysis. Table 1 lists the standard methods used at that laboratory.

Trace metal samples were collected in plastic buckets or dipped directly from the river. Special acid-rinsed plastic bottles were used for sampling. Double distilled nitric acid was added to reduce the pH to 3 and the samples were transported to the laboratory.

The few pesticide samples were collected in specially rinsed one-gallon glass bottles and delivered to the laboratory within 24 hours.

TABLE 1

ANALYTICAL METHODS FOR WATER QUALITY PARAMETERS

Parameter	Method
Electrical Conductivity	Beckman Wheatstone Bridge
Total Hardness	EDA - Titrimetric - AWWA
Sodium	Flame Photometric - AWWA
Potassium	Flame Photometric - AWWA
Sulfate	Gravimetric - AWWA
Chloride	Argentometric - AWWA
Boron	Carmine - AWWA
Arsenic	Silver Diethyl - AWWA
Barium	Atomic Absorption Spectrophotometric
Cadmium	Atomic Absorption Spectrophotometric
Chromate	Atomic Absorption Spectrophotometric
Copper	Atomic Absorption Spectrophotometric
Iron	Atomic Absorption Spectrophotometric
Lead	Atomic Absorption Spectrophotometric
Manganese	Atomic Absorption Spectrophotometric
Zinc	Atomic Absorption Spectrophotometric
Mercury	Cold Vapor Atomic Absorption - EPA
Dissolved Nitrate	Brucine - AWWA
Total Ammonia	Distillation & Nesslerization - AWWA
Total Organic Nitrogen	Digestion & Nesslerization - AWWA
Dissolved Phosphate	Stannous Chloride - AWWA
Total Phosphate	Stannous Chloride, Sulfuric Nitric Acid Digestion - AWWA

Nutrient (nitrogen and phosphorus series) samples were collected in plastic bottles and held in portable ice chests for delivery to the laboratory. When storage was to exceed 48 hours, samples were frozen and stored in a freezer.

Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) samples were collected in glass containers and placed in ice chests for delivery to the laboratory within 24 hours. These determinations were made in the Bryte laboratory using the methods described in "Standard Methods for the Examination of Water and Wastewater", 14th edition, 1976.

Total Organic Carbon (TOC) samples were collected by dipping with special laboratory-cleaned two-ounce glass bottles and acidified with hydrochloric acid. They were placed in an ice chest and delivered to Bryte within 24 hours. The standard combustion-infrared method of analysis was used in these determinations.

Benthic invertebrate samples were collected with hand-held kick screens (9.5 mm mesh) or Surber samplers (0.363 mm mesh). They were preserved in formalin until delivered to the laboratory. Appendix F contains more detailed information on the methods of sampling and preservation.

STUDY RESULTS

Historic information was useful not only in designing the field investigation, but also in providing a means of relating data developed during the abnormally dry years of 1977-79 to normal conditions. Appendices A through E contain the surface water-quality data developed during this study, as well as historic data. The appendices present data from the entire Pit River drainage upstream of Lake Britton. Sampling stations are shown in Plate 1, and data are arranged according to sample station number. Data for each station are arranged chronologically.

Chemical Characteristics

The North and South Forks of the Pit, which join at Alturas to form the main stem, have as their major sources streams that drain the Warner Mountains. These tributary streams deliver waters of excellent mineral quality, with EC values of less than 200 microsiemens per centimetre (µS/cm). When the runoff from winter storms or spring snowmelt is high, EC values often drop below 100 µS/cm. As waters of the North and South Forks move out of the mountains, they flow across Recent alluvial and Quaternary lake deposits dissolving materials from these deposits and receiving additional dissolved solids in the runoff from adjacent agricultural lands. During summer low-flow periods, these additions often raise EC values to more than 350 µS/cm at Alturas.

Downstream from Alturas, more runoff and agricultural return flows join the Pit River. During summer low-flow conditions, these inflows tend to increase EC values as far downstream as Big Valley, where at times the entire river is diverted for use. Waters stored during the winter and spring in numerous reservoirs within the drainage are frequently released for use during the summer; these cause fluctuations in the EC of the river.

Below Big Valley, springs and tributary inflow add significantly to Pit River flow, particularly in Fall River Valley. While river waters in Big Valley often have EC values exceeding 350 µS/cm, the downstream tributary waters usually have an EC of less than 200 µS/cm and reduce the level in the Pit River to about 170 µS/cm at Lake Britton.

The seasonal variation in EC is notable at most Pit River sampling stations. Figure 4 gives monthly measurements of EC for the Pit River near Canby covering the period 1971-80. As shown, EC values normally range from about 150 to 325 µS/cm, with annual highs from October to December and lows from March to April. It is noteworthy that the EC pattern is quite variable from year to year, reflecting both the large variation in precipitation and the operation of the numerous upstream storage reservoirs. The effect of the drought and reduced runoff conditions on EC in 1977 is very apparent in Figure 4; none of the monthly measurements are below 250 µS/cm. However, in April 1978, winter runoff dropped the EC of the river water at the station to below 200 µS/cm. The maximum EC measured at this station has seldom exceeded 350 µS/cm, which indicates a total dissolved solids content of less than 250 mg/l.

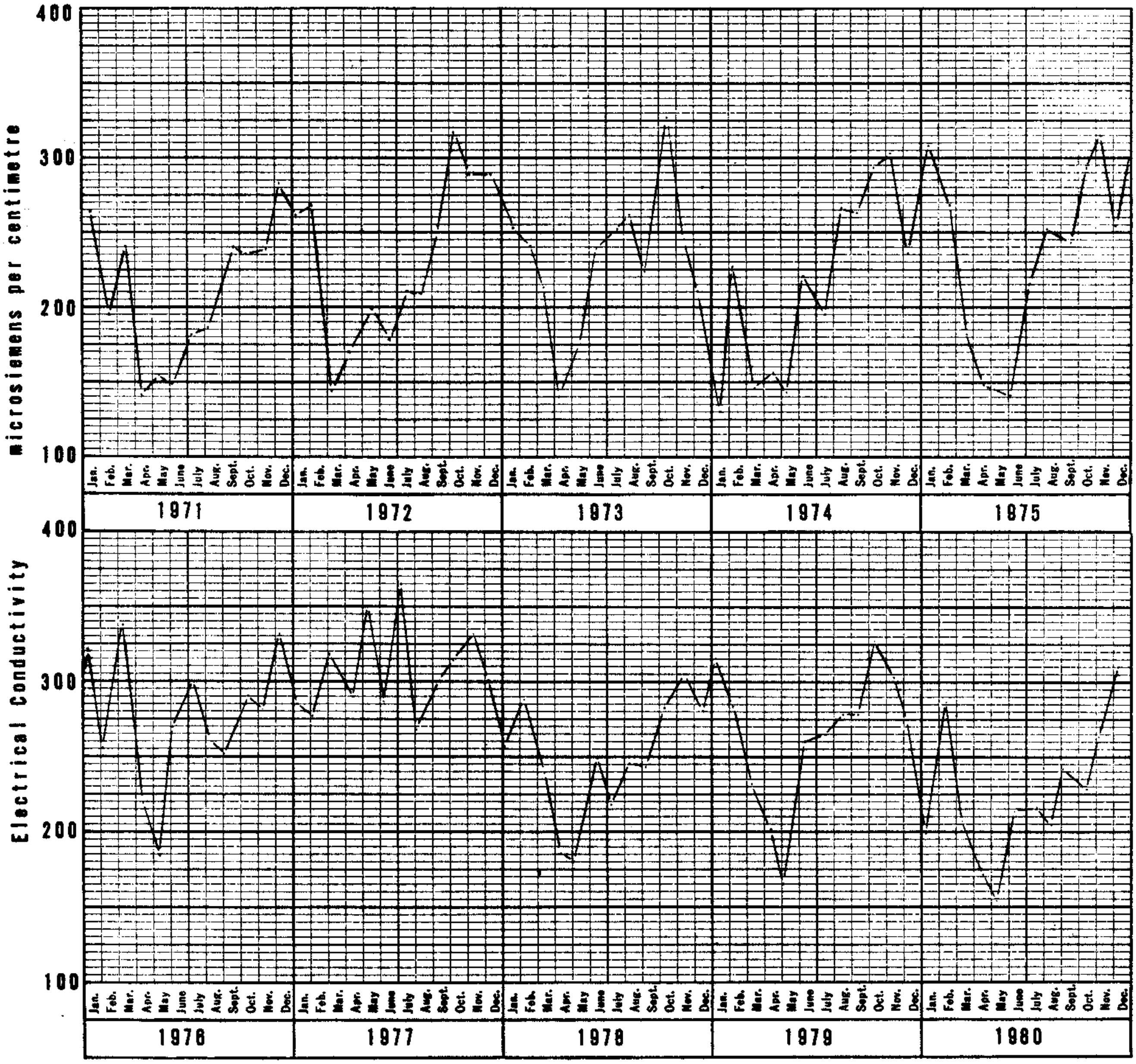
The waters of the Pit River are strongly bicarbonate in character but generally have no dominant cation. Analyses indicate that their adjusted sodium absorption ratios seldom exceed 3, and their use for irrigation should not cause a permeability reduction hazard.

Chlorides

Throughout the Pit River system, chloride levels are generally low. Even when flows are low and concentrations highest, chlorides have not been measured in excess of 25 mg/l. In the river between Alturas and Pit River near Bieber (A1 1400.00), chloride concentrations usually range from less than 1 mg/l to about 15 mg/l. From Pit River at Pittville (A1 1270.00) downstream to Lake Britton, chloride concentrations are usually less than 8 mg/l. Most of the smaller tributaries of the river have chloride concentrations of less than 5 mg/l.

Sulfates

The sulfate ion concentrations in the Pit River system are very similar in pattern to the total dissolved solid and chloride concentrations, in that the greatest concentrations are associated with low flows in the upper reach of the river from Alturas to Pit River near Bieber (A1 1400.00). In this reach, concentrations frequently exceed 10 mg/l, and have been measured as high as 40 mg/l. Downstream of Fall River Mills, the sulfate concentrations in the Pit River are usually less than 5 mg/l.



Electrical Conductivity in Pit River near Canby. A1-1680.00

Boron

Boron concentrations in the Pit River are generally less than 0.1 mg/l. The maximum concentration of boron detected was 0.4 mg/l, found near Canby (A1 1680.00).

pH and Alkalinity

The pH of the river is quite variable, usually ranging from about 7.0 to 9.0. The highest pH values generally occur during summer low-flow periods, when biological productivity is at the highest.

Alkalinity varies greatly but rarely exceeds 200 mg/l. Alkalinity levels are similar to the EC in seasonal and areal variation. The minimum levels are about 40 mg/l and occur during the winter and spring runoff periods.

Nutrients

Determinations of the nutrients nitrogen and phosphorus were made from selected samples during the study. Nitrogen was generally present as nitrate, ammonia, and organic compounds (Appendix B). The nitrate nitrogen levels in the Pit River ranged from 0.0 to 0.31 mg/l, with a median concentration 0.07 mg/l. These levels are about normal for the rivers of Northern California. The total ammonia plus organic nitrogen concentrations ranged from 0.16 to 3.6 mg/l having a median of 1.1 mg/l in the Pit River from Alturas to Bieber and a median of 0.06 mg/l downstream to Lake Britton. These levels are not only higher concentrations than normally found in Northern California rivers but are higher than usually found in agricultural surface drainage.

Dissolved orthophosphate phosphorus concentrations in the Pit River varied from 0.00 to 0.28 mg/l. From Alturas to Bieber, the median concentration was 0.10 mg/l, which is higher than normally found in most Northern California rivers but similar to that found in agricultural surface drainage. Pit River waters between Pittville and Lake Britton have a lower median concentration of 0.03 mg/l, which is less than is usually found in agricultural surface drainage. Total phosphorus concentrations ranged from 0.04 to 0.50 mg/l, with median values of 0.18 mg/l for the river upstream from Bieber and 0.07 mg/l downstream to Lake Britton. These concentrations are higher than those found in most Northern California rivers.

Dissolved Oxygen

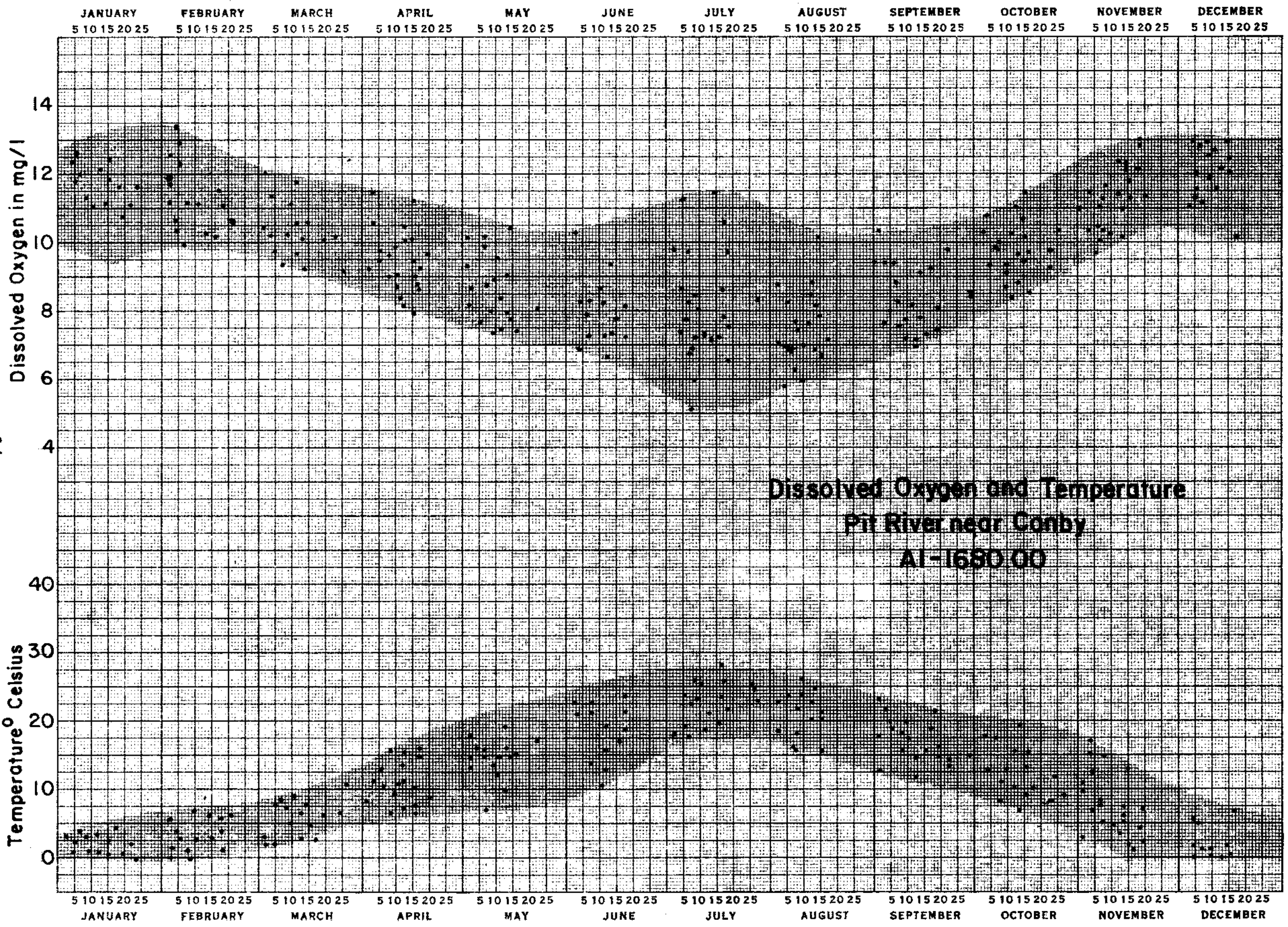
Dissolved oxygen data in Appendix A show that levels in the Pit are quite variable, particularly in the spring and summer when photosynthesis adds oxygen to the system and respiration consumes it. Figure 5 shows the seasonal pattern of DO levels in the Pit River near Canby (Station A1 1680.00) based on monthly daytime measurements covering the period 1965-1980. This annual pattern is typical of other Northern California rivers, having higher oxygen levels in the winter months due to the higher solubility of oxygen in cold water and lower but more variable concentrations during the months of June, July, and August, when the water is warmer and biological processes affect the system.

Data collected during diel surveys verified that the richness of the Pit River resulted in large fluctuations in DO during the summer months. Diel DO variations have been measured in excess of 5 mg/l at Station A1 1680.00, as shown on Figure 6. These data show the large fluctuations in DO, which are typical of productive waters becoming supersaturated during the daylight hours, with oxygen produced during photosynthesis and dropping below saturation due to respiration demands during periods of reduced light. DO levels have been detected below 5 mg/l several times at this station and have been measured as low as 3.6 mg/l, which is a level which can be stressful or fatal to fish.

Diel DO levels in the North Fork Pit River (A1 2020.00) and South Fork Pit River (A1 4010.00) are shown in Figures 7 and 8 and follow a pattern typical of moderately productive streams. DO values at these stations in the summer low-flow periods generally ranged from 5.5 to 9.0 mg/l, although a low of 3.5 mg/l was measured in the North Fork in August 1979.

Diel DO data for the Pit River at County Road 70 (A1 1751.00) are presented in Figure 9 and show patterns similar to the upstream stations (except during June 1978, when the DO dropped to 0.7 mg/l). The decrease followed an increase in flow, probably caused by release of stored irrigation or waste water upstream.

Summer DO values for the Pit River stations near Lookout (A1 1570.00) and at Bieber (A1 1425.00) are shown in Figures 10 and 11 and ranged from 5.5 to 10.2 mg/l. Saturation values ranged as high as 145 percent, indicating a moderately high level of biological productivity.



Dissolved Oxygen and Temperature
Pit River near Canby
AI-1680 00

Figure 5

Pit River near Canby (AI 1680.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

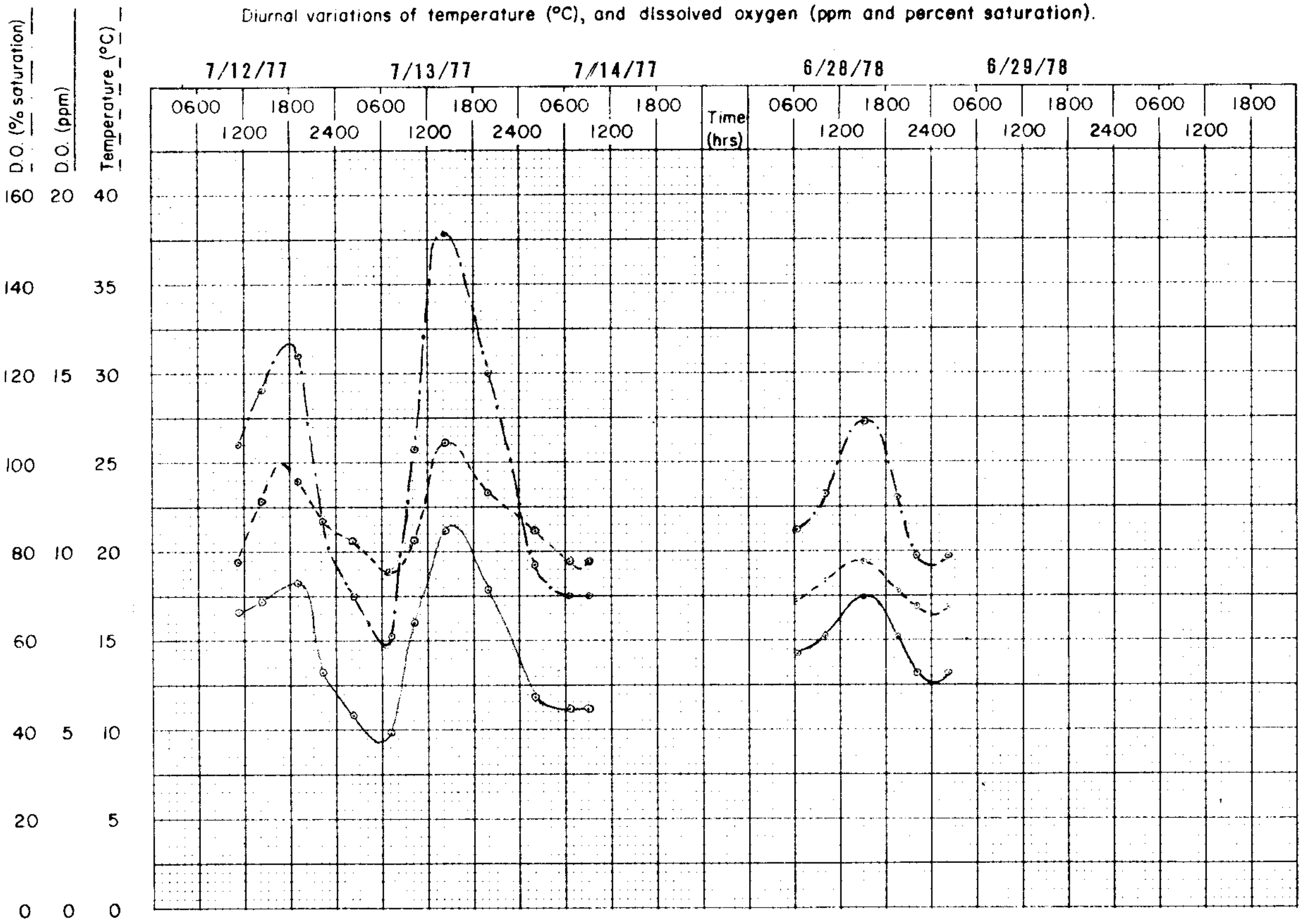


Figure 6a

Pit River near Canby (AI 1680.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

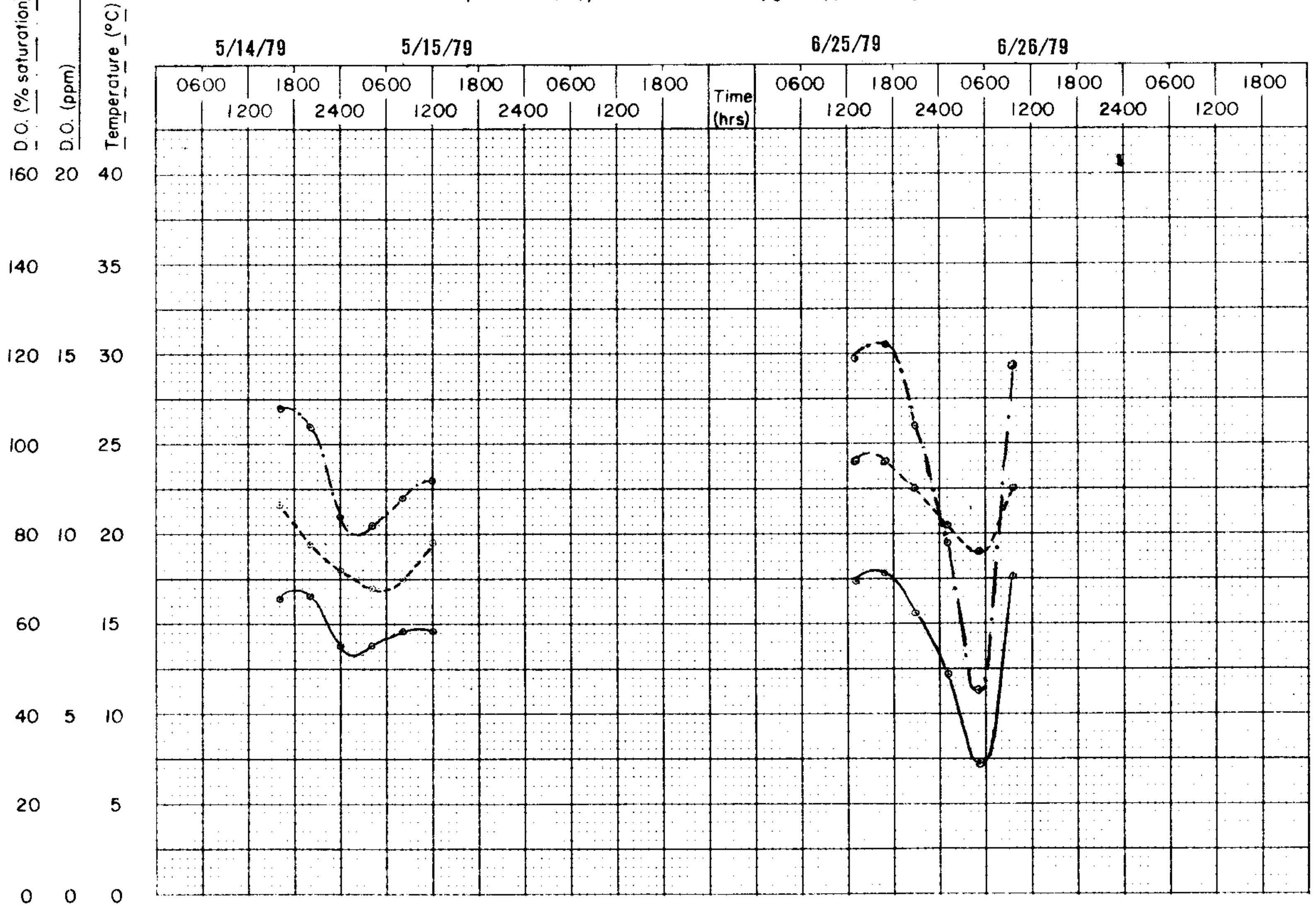


Figure 6b

Pit River near Canby (A1 1680.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

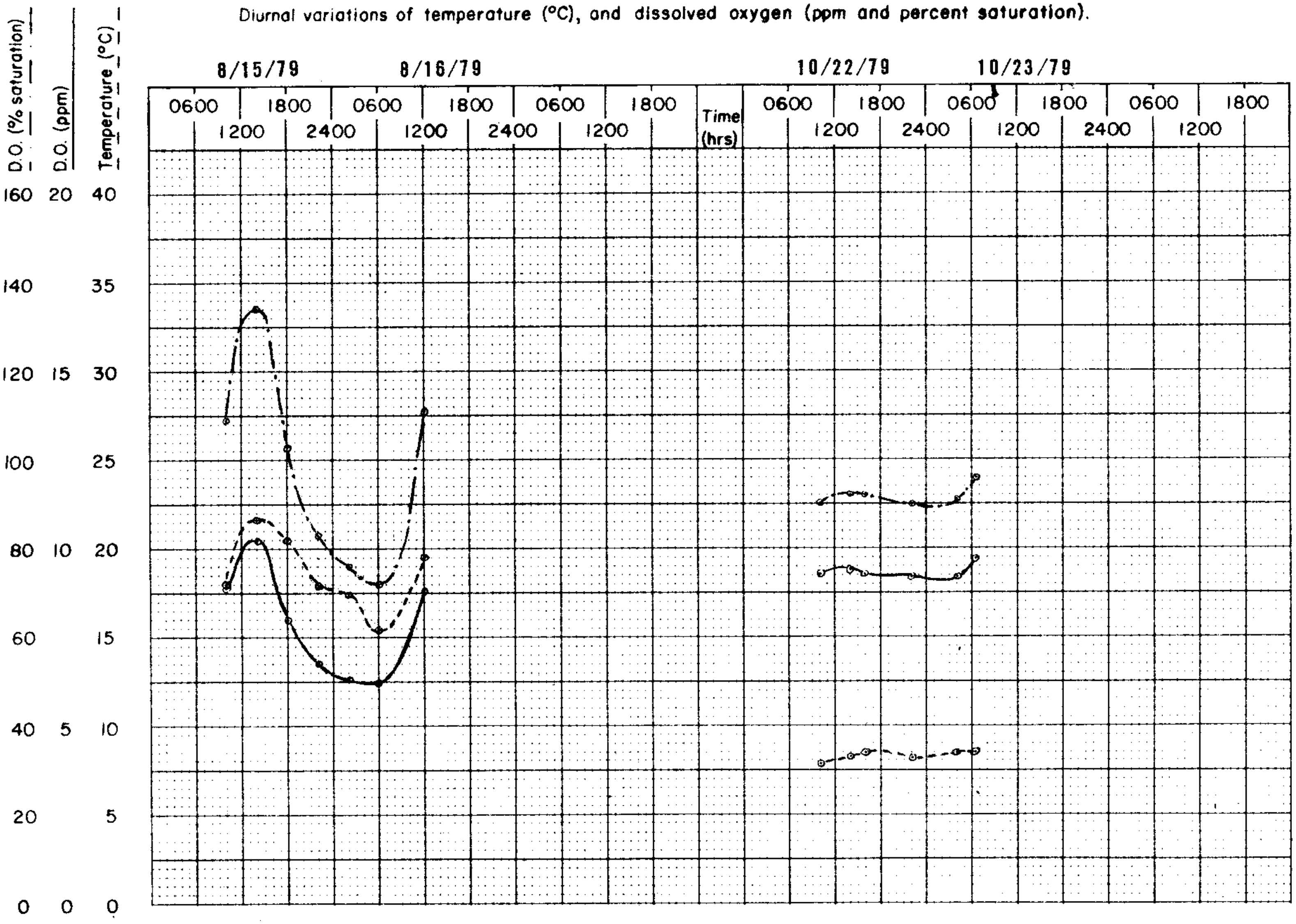


Figure 6c

North Fork Pit River at Centerville Road (AI 2020.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

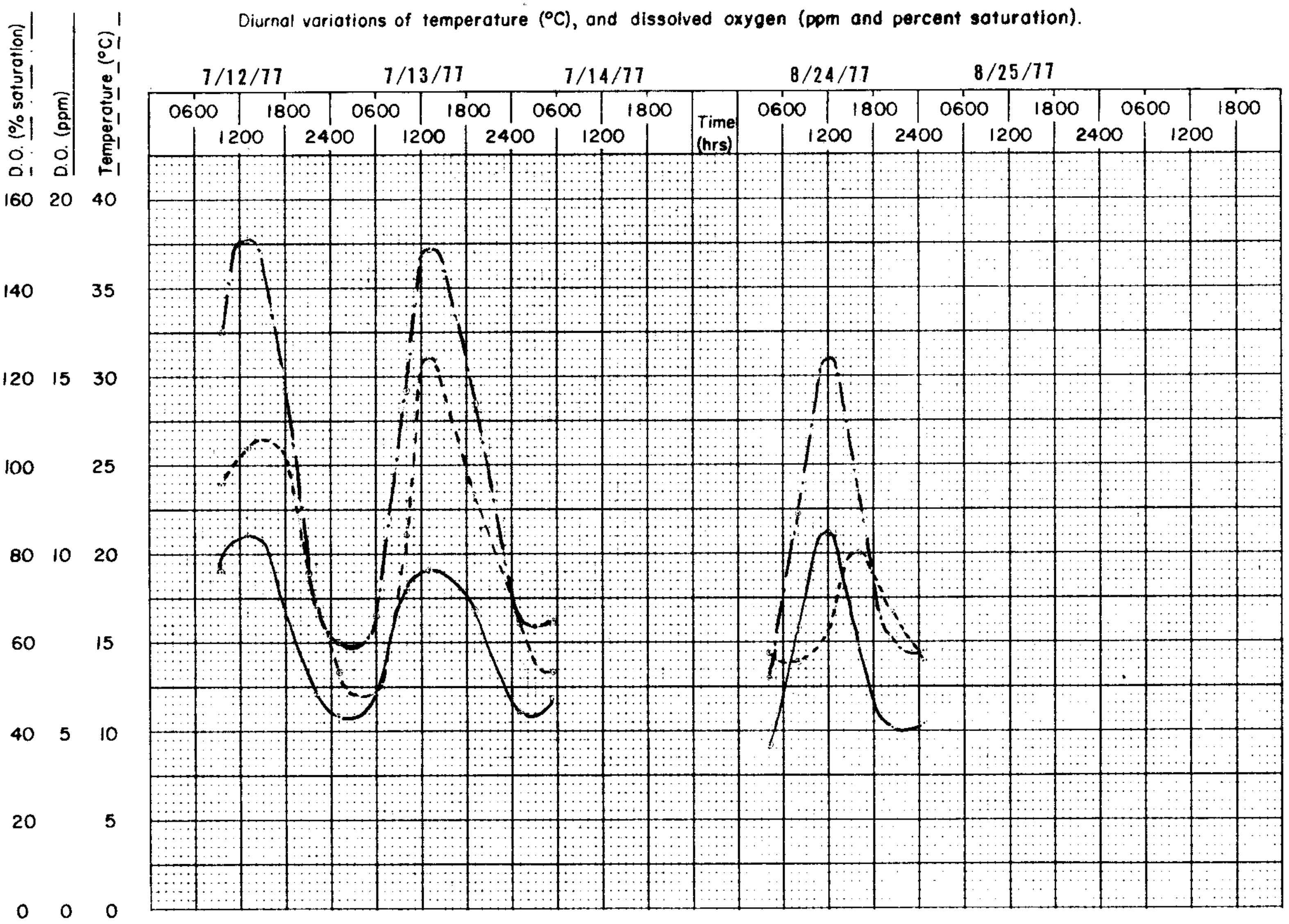


Figure 7a.

North Fork Pit River at Centerville Road (AI 2020.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

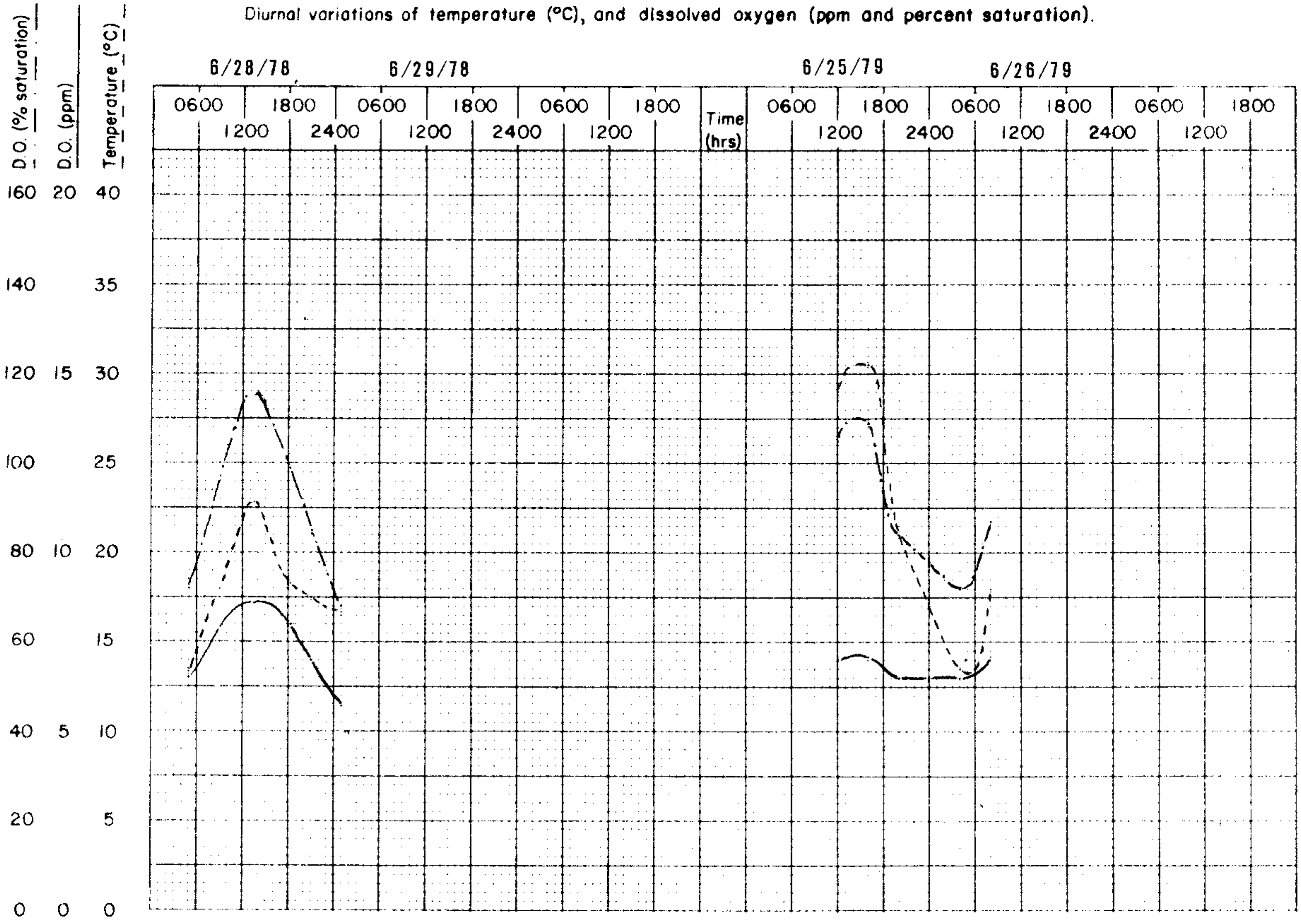


Figure 7b.

North Fork Pit River at Centerville Road (Al 2020.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

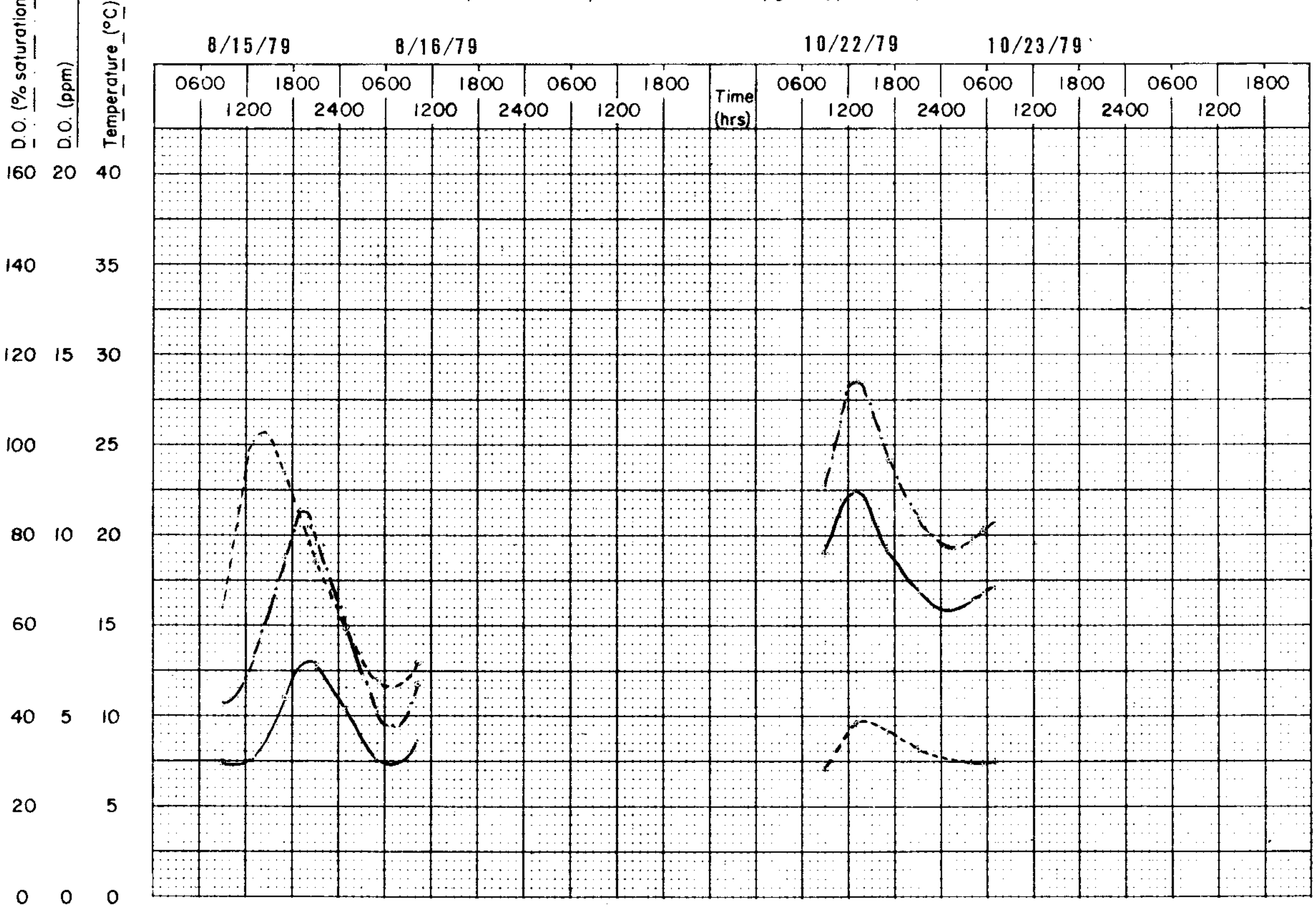


Figure 7c.

South Fork Pit River at Alturas (AI 4010.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

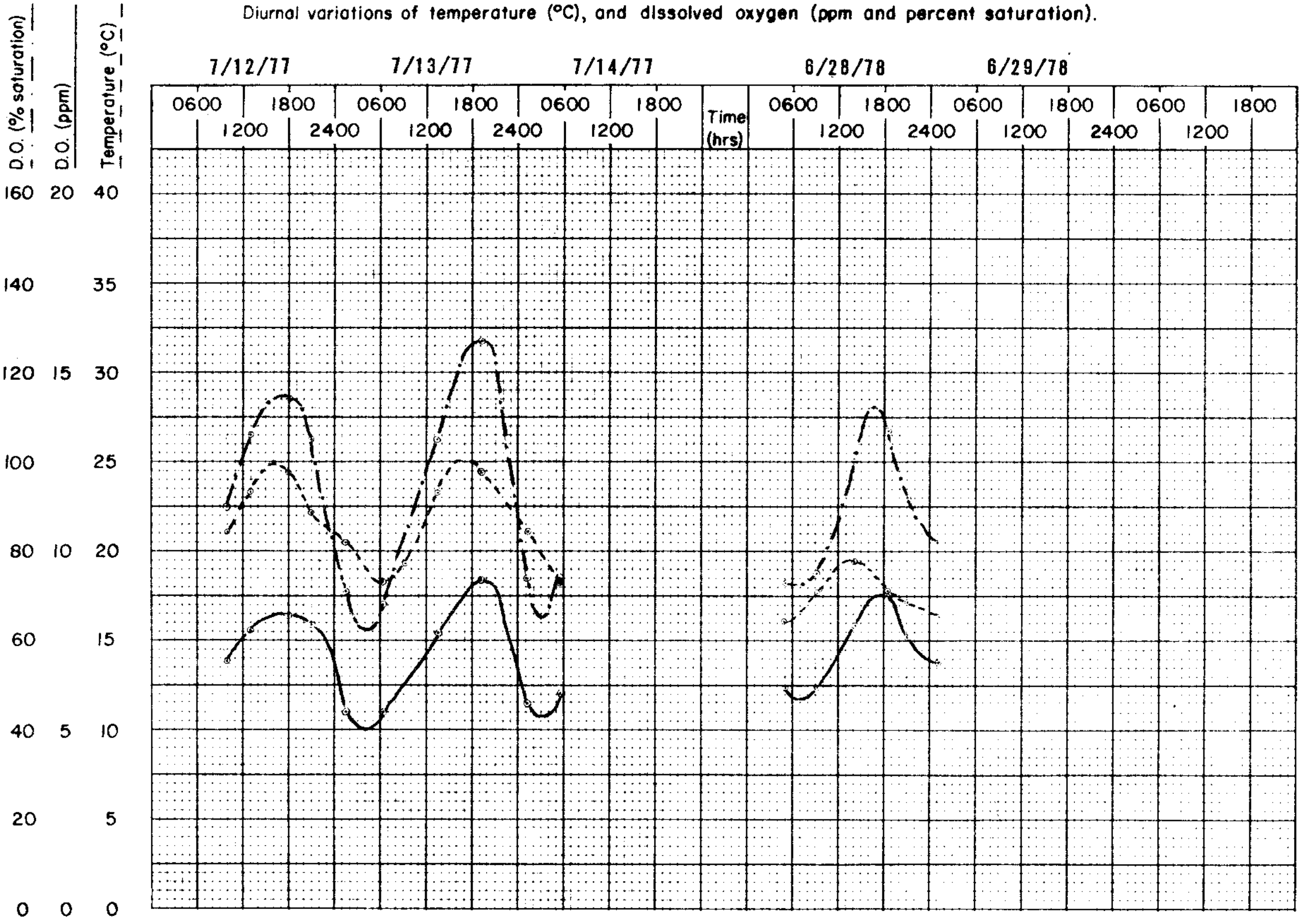


Figure 8a

South Fork Pit River at Alturas (AI 4010.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

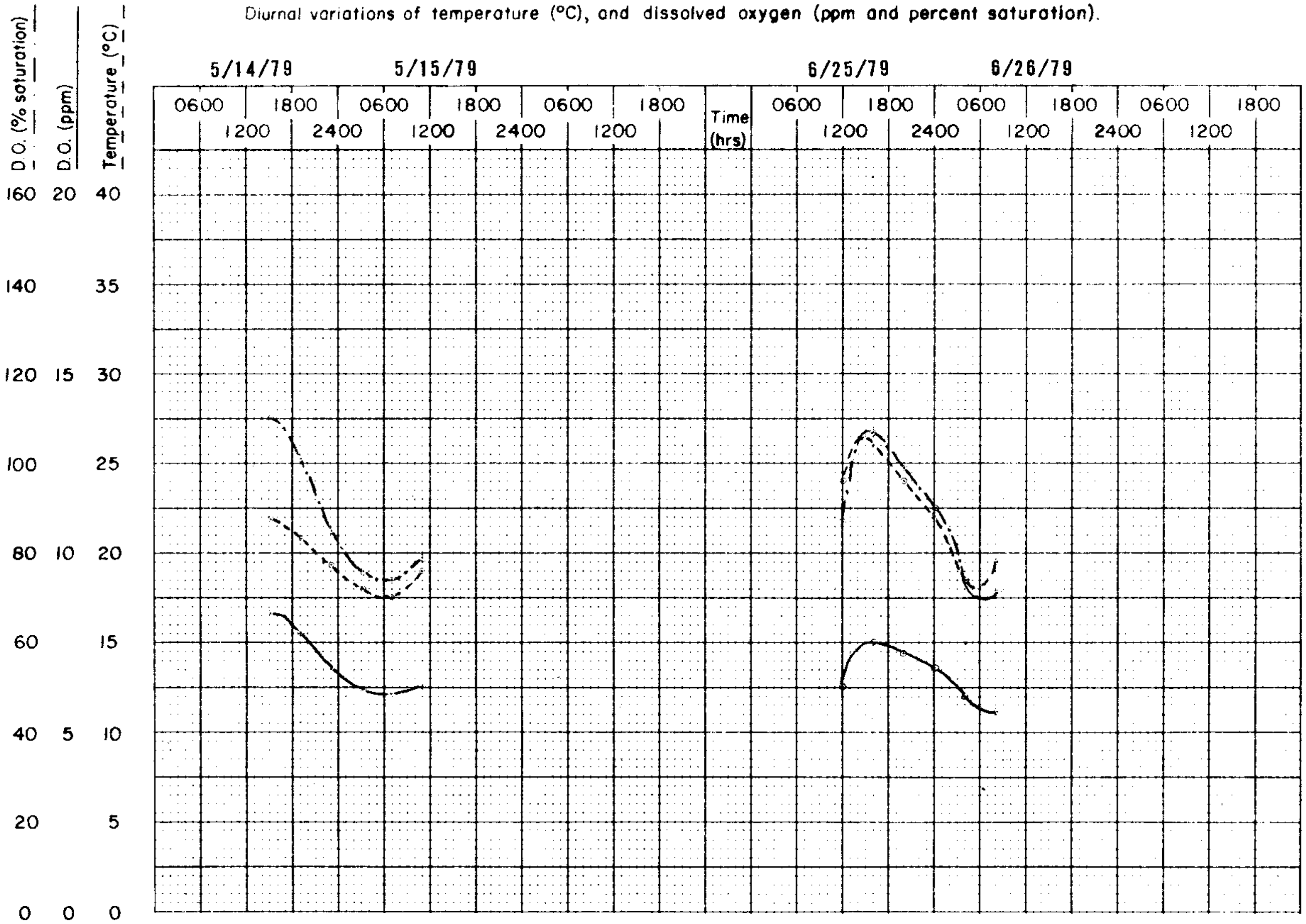


Figure 8b

South Fork Pit River at Alturas (Al 4010.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

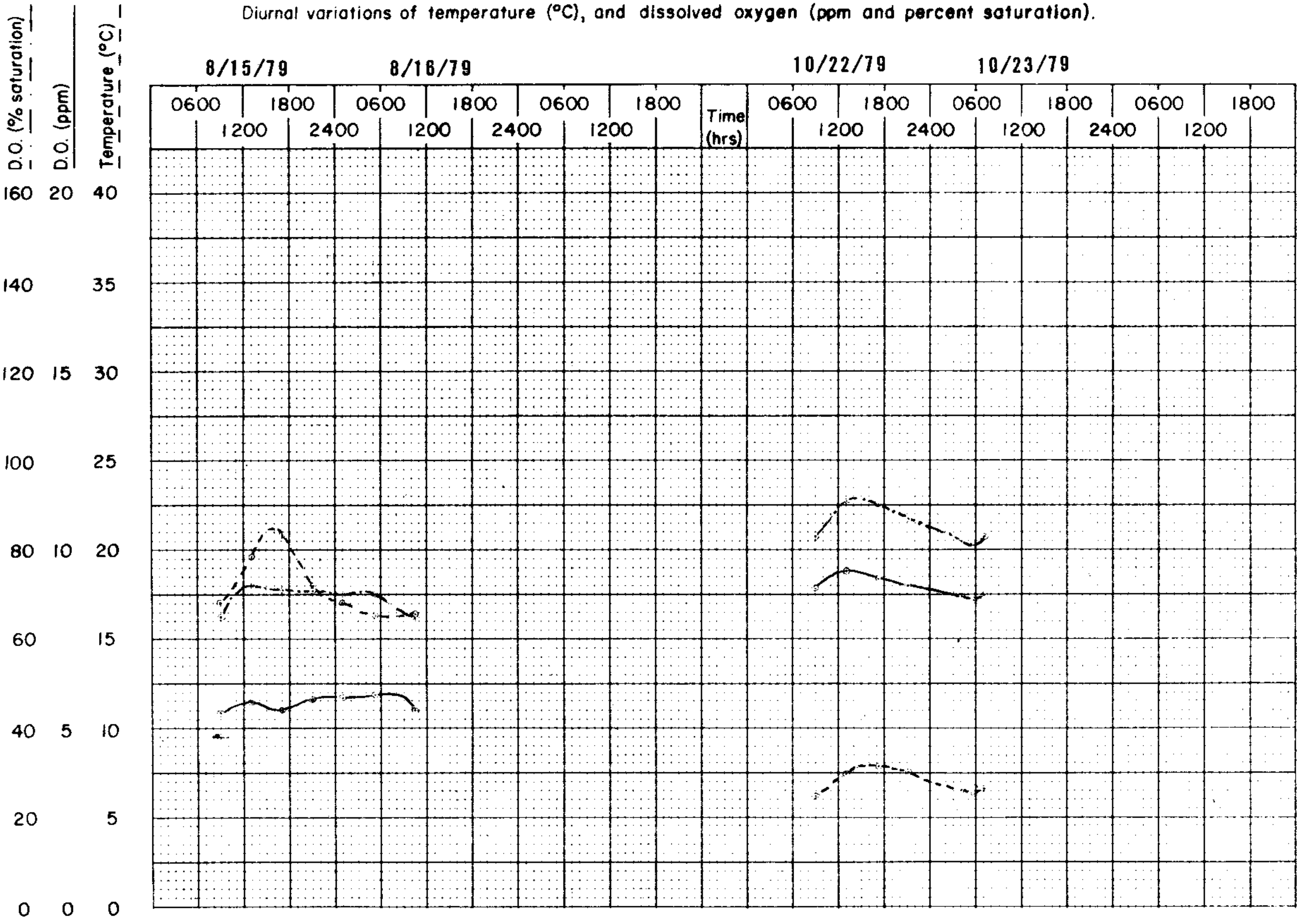


Figure 8c

Pit River at County Road 70 (AI 1751.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

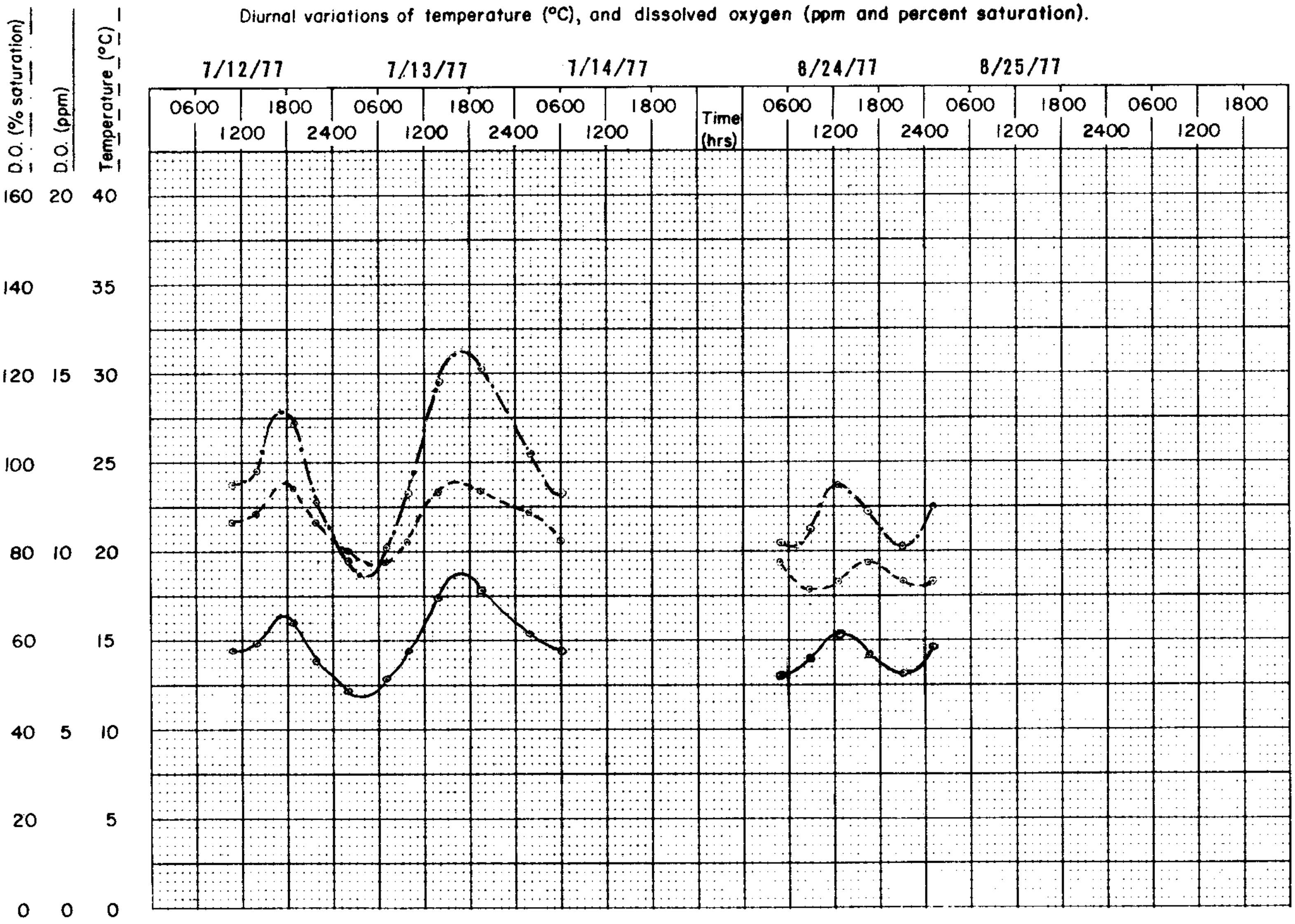


Figure 9a

Pit River at County Road 70 (AI 1751.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

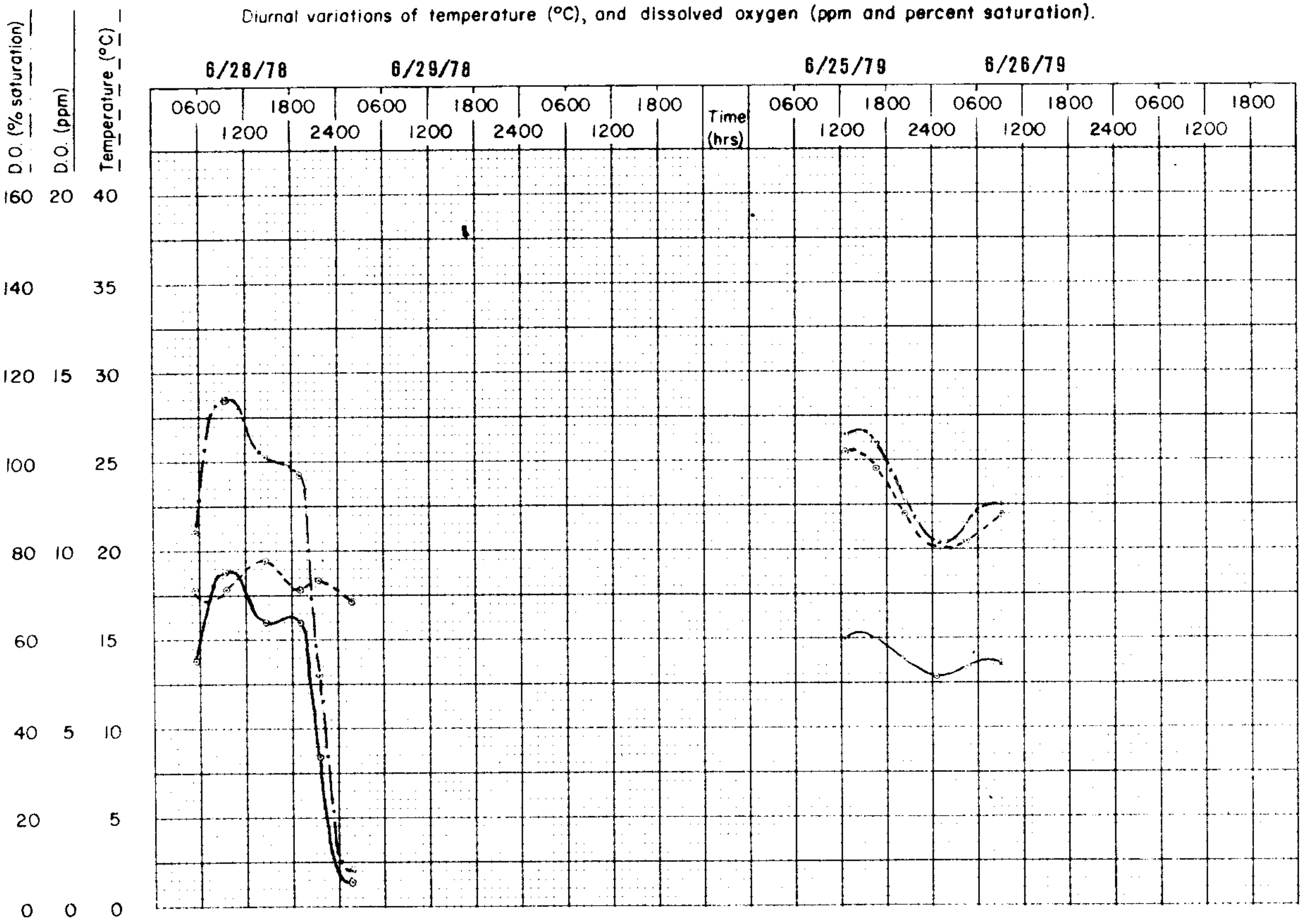


Figure 9b

Pit River at County Road 70 (AI 1751.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

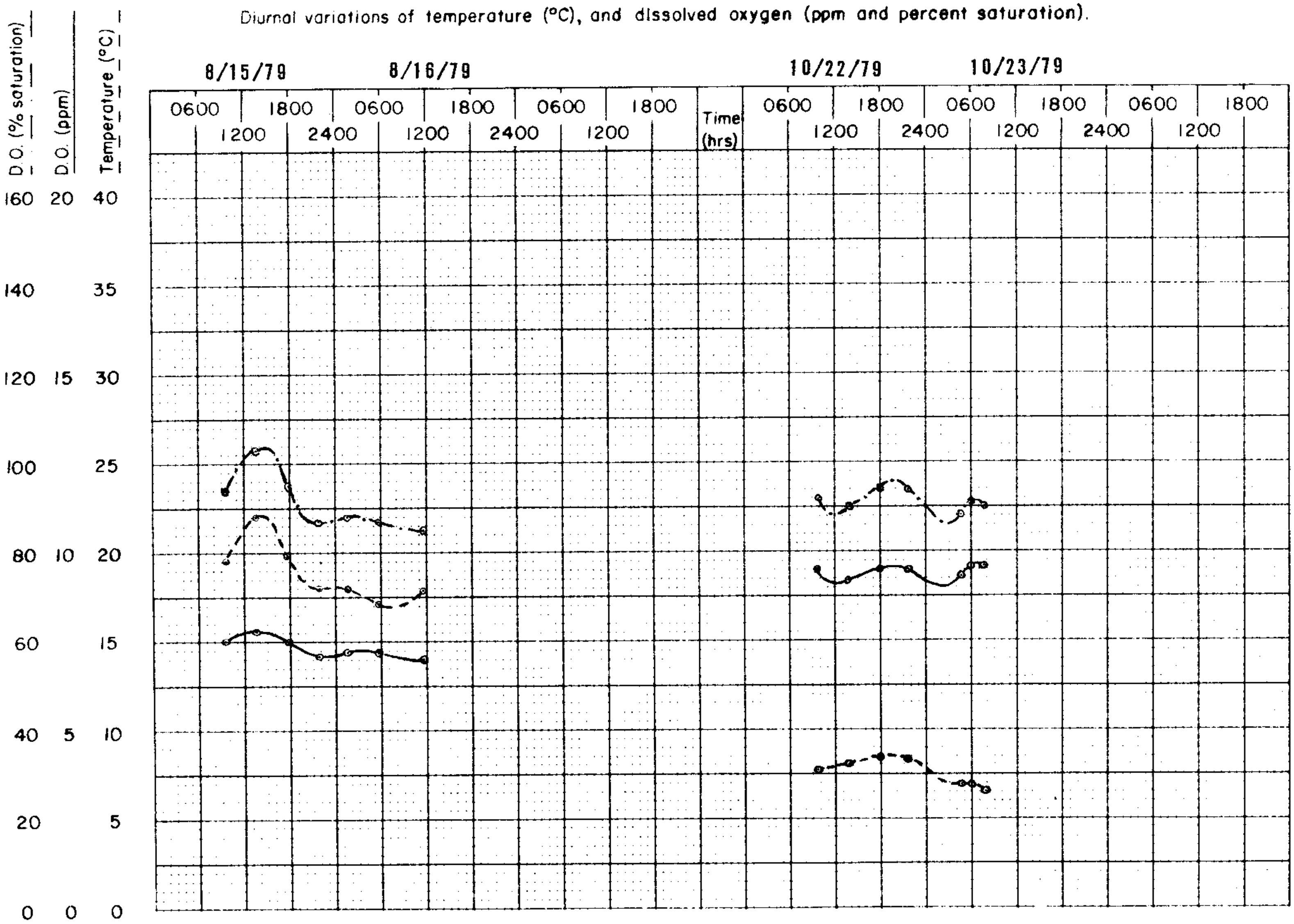


Figure 9c

Pit River near Lookout (AI 1570.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

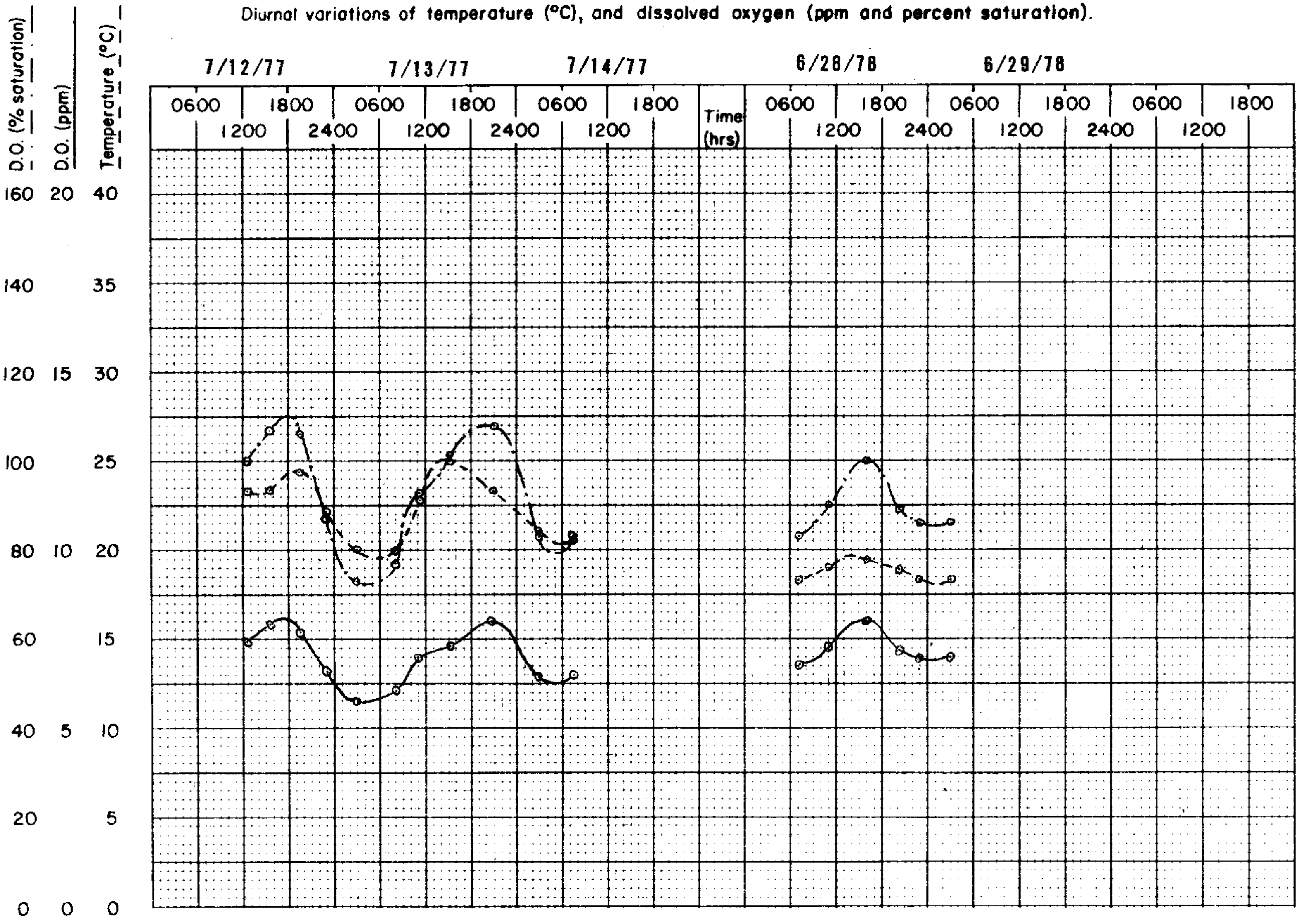


Figure 10a

Pit River near Lookout (AI 1570.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

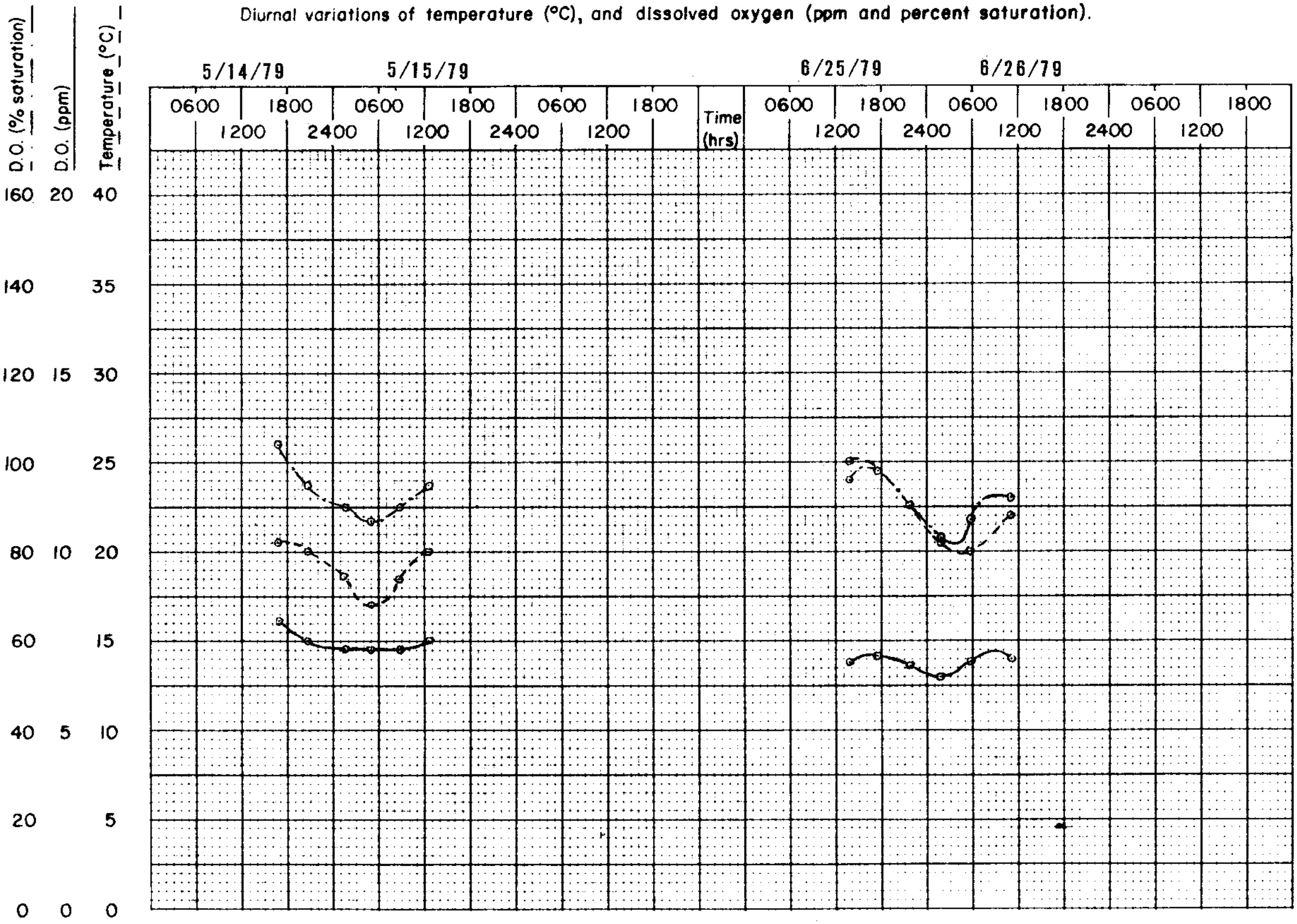


Figure 10b

Pit River near Lookout (AI 1570.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

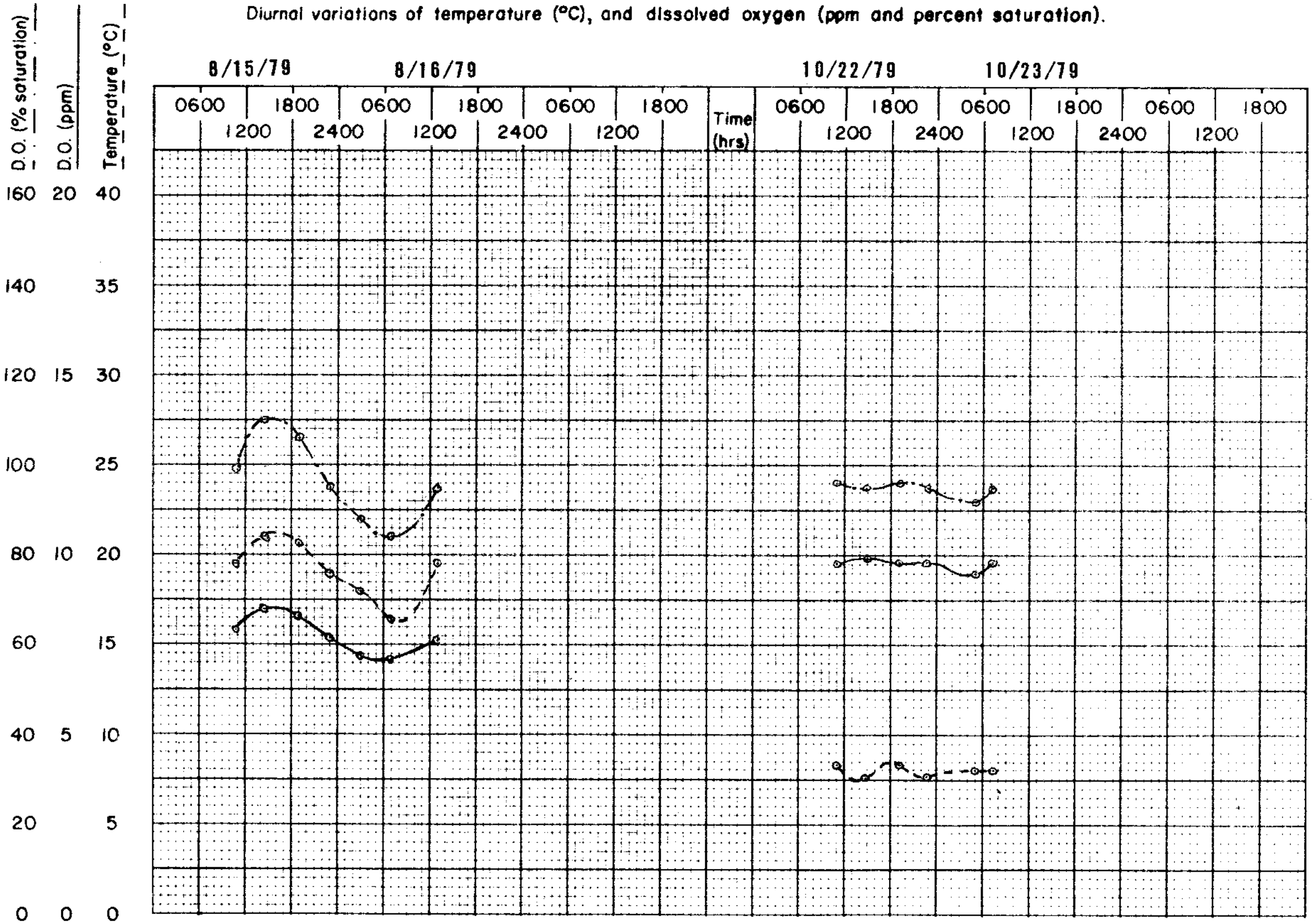


Figure 10c.

Pit River at Bieber (Al 1425.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

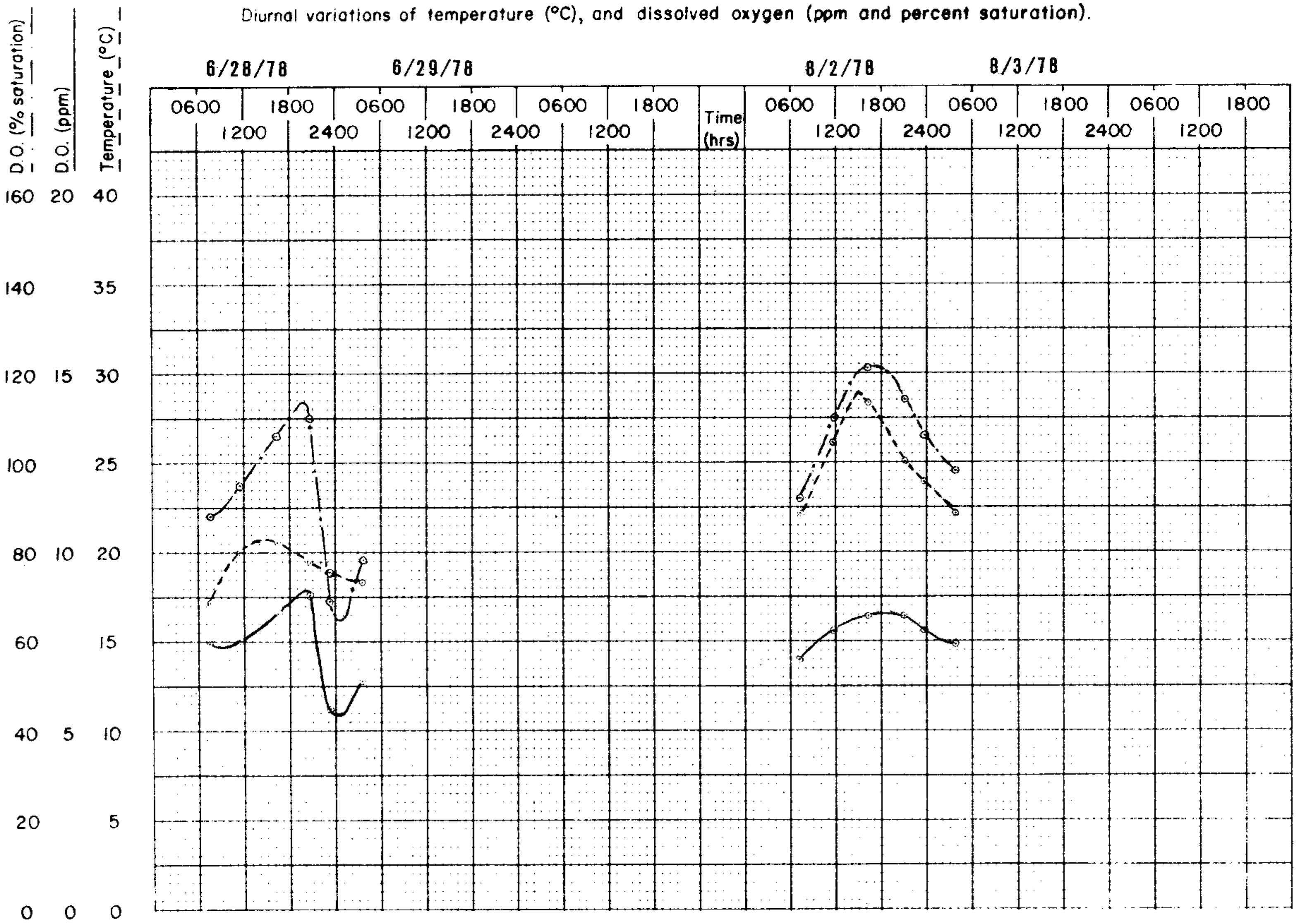


Figure 11a

Pit River at Bieber (AI 1425.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

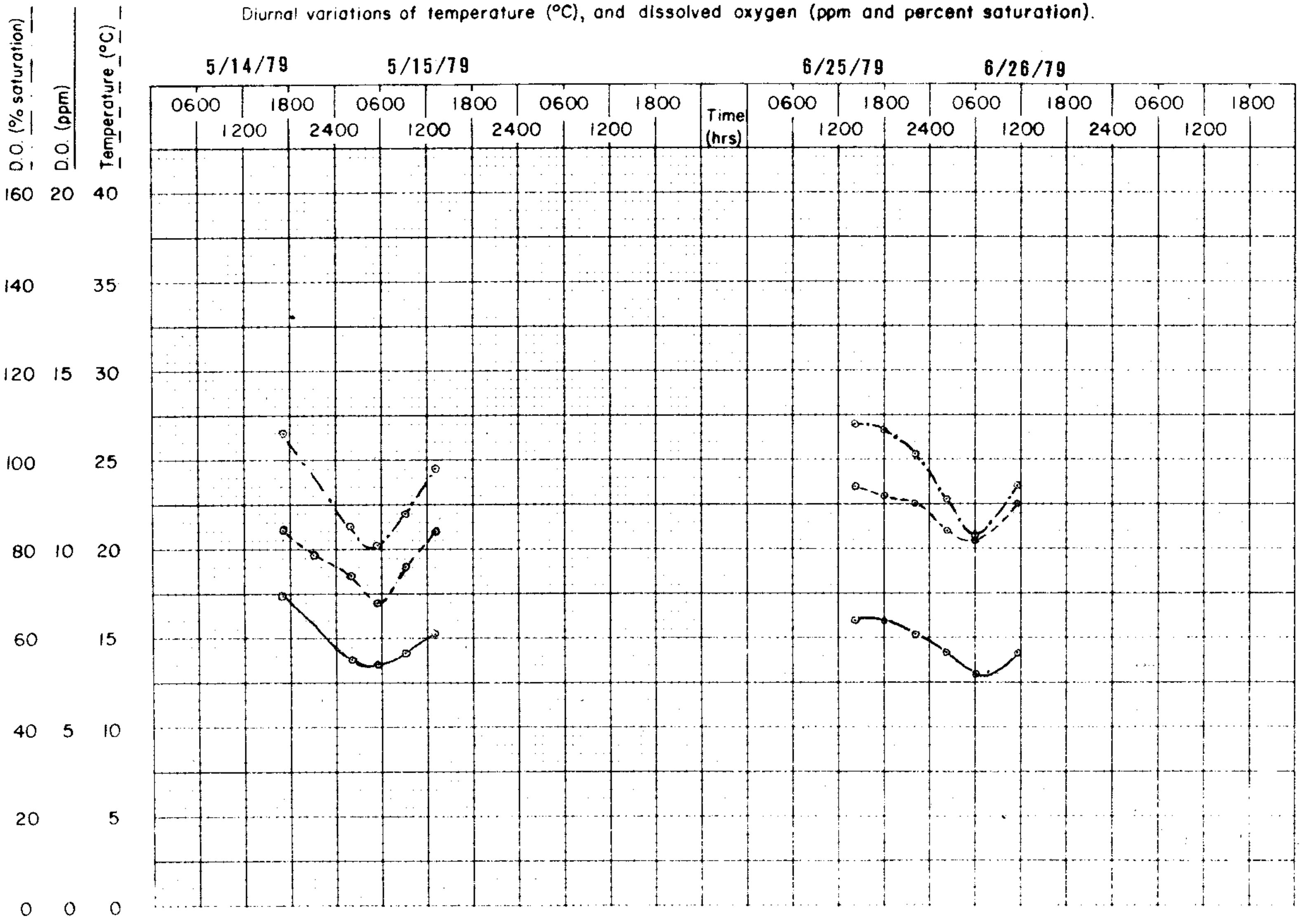


Figure 11b

Pit River at Bieber (AI 1425.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

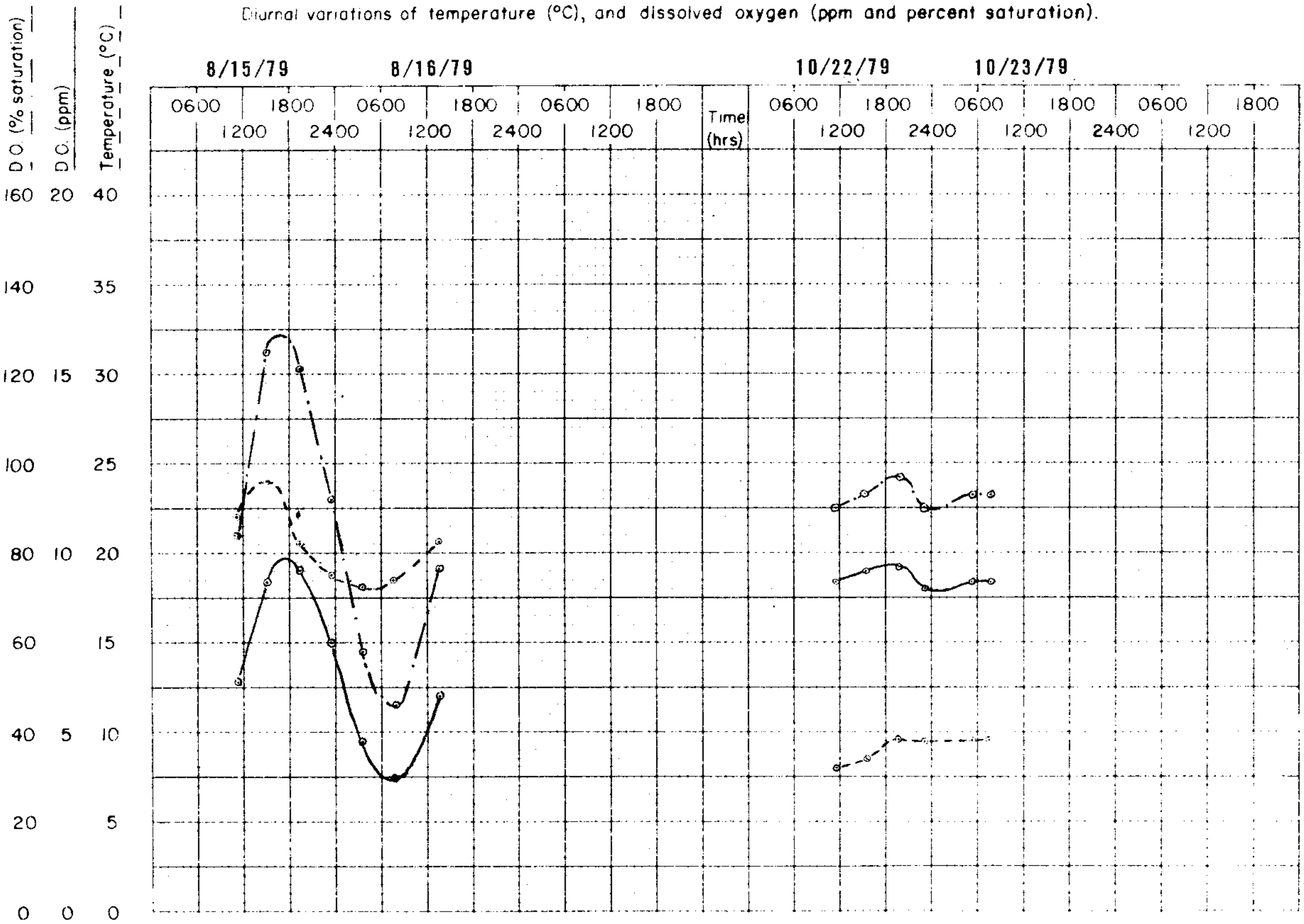


Figure 11c

The Pit River at Pittville (A1 1270.00) and Fall River at Fall River Mills (A1 7100.00) DO fluctuations are shown in Figures 12 and 13. The diel changes at these stations were larger than those found at upstream stations. Concentrations ranged from 1.9 to 13.8 mg/l at Pittville and 5.1 to 12.5 mg/l in Fall River. These concentrations represent 23 to 175 percent saturation and 62 to 161 percent saturation, respectively. The greater ranges in oxygen levels and percent saturations indicate that primary productivity is very high at these stations in summer.

Oxygen conditions in the Pit River above Pit 1 Powerhouse (A1 1225.00), Pit River at U. S. Highway 299 near Burney (A1 1220.00), and Burney Creek at Burney Falls (A1 5100.00) are all similar, with DO ranging from 7.5 to 10.5 mg/l and percent saturations seldom less than 85 percent or more than 120 percent. These data are shown in Figures 14-16. These ranges of DO and percent saturation change represent moderate productivity with excellent oxygen conditions.

Total Organic Carbon

The TOC sampling was done in July 1979 during summer flow conditions. TOC levels in the Pit ranged from 2.3 to 37 mg/l, with a median of 7 mg/l. The highest level was found in the Pit River at Bieber. The waters at this station generally have a brownish organic color in summer and consist primarily of return flows that have leached organics from the rich soils of Big Valley.

Stations upstream of Bieber had TOC concentrations exceeding 10 mg/l, while those downstream were less than 3.5 mg/l. The concentrations in the Pit River at Bieber and upstream stations in the summer are typical of those found in agricultural drainage or large silt-transporting rivers, while concentrations downstream are similar to those found in other productive Northern California rivers.

Pit River at Pittville (Al 1270.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

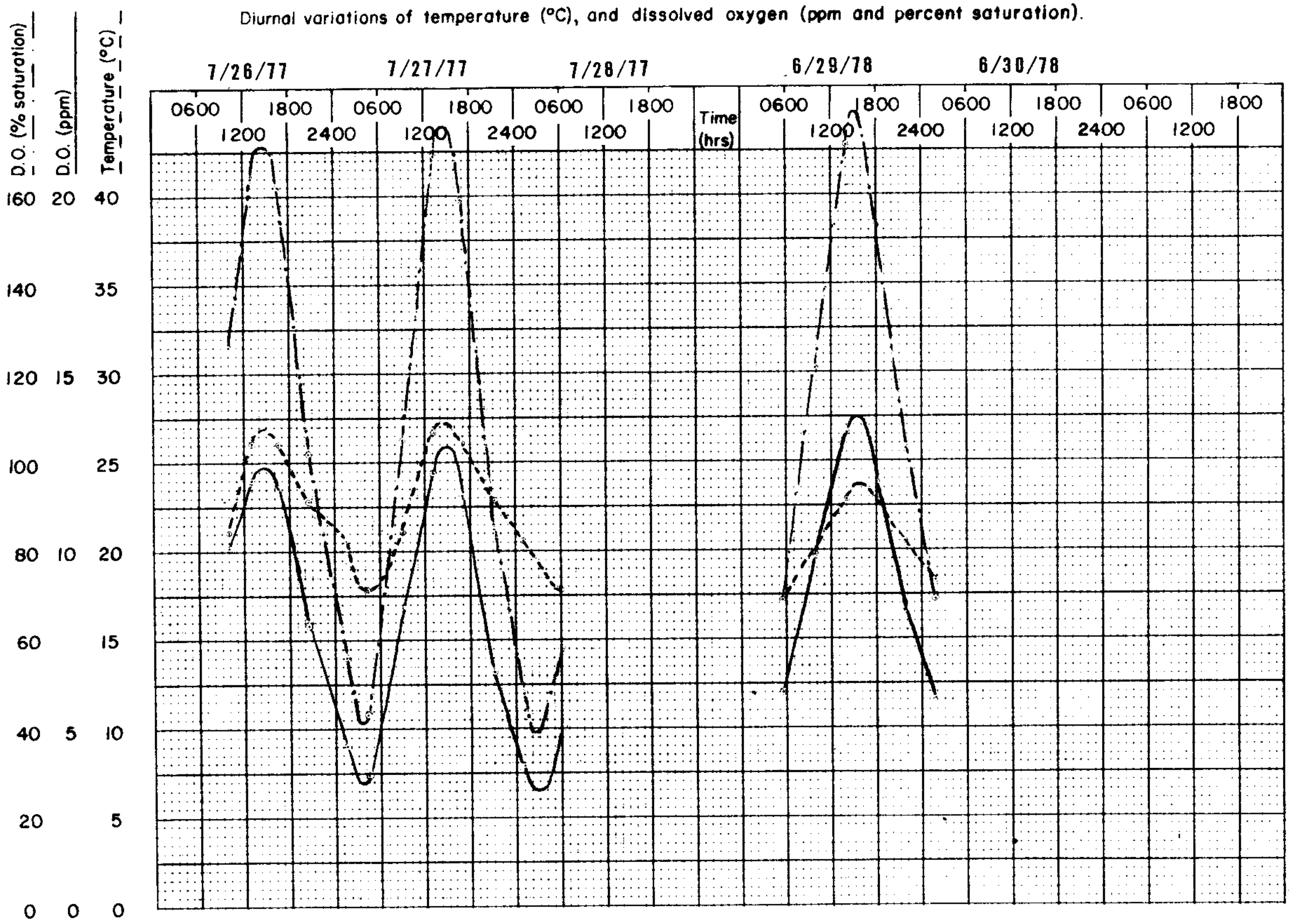


Figure 12a

Pit River at Pittville (Al 1270.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

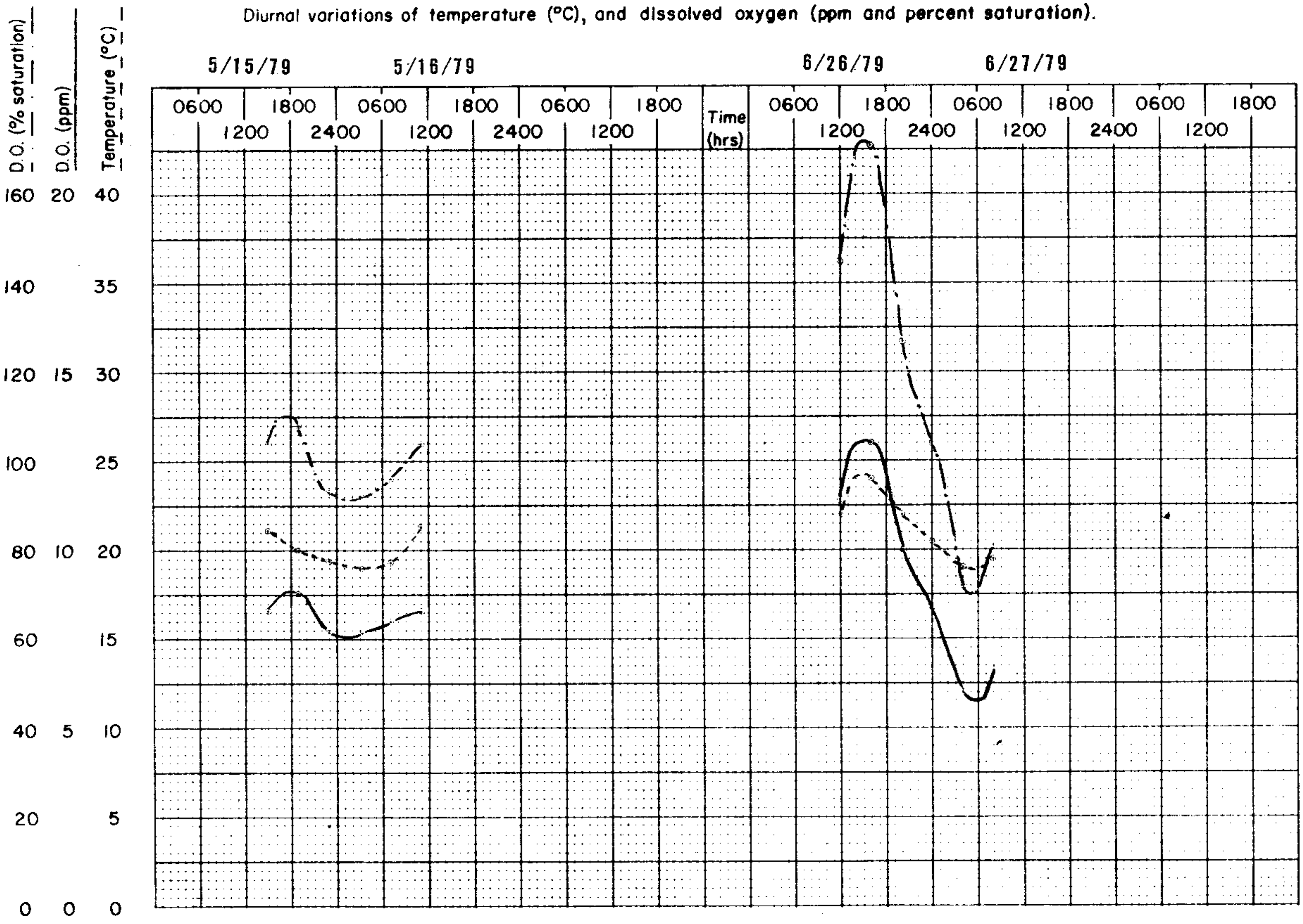


Figure 12b

Pit River at Pittville (AI 1270.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

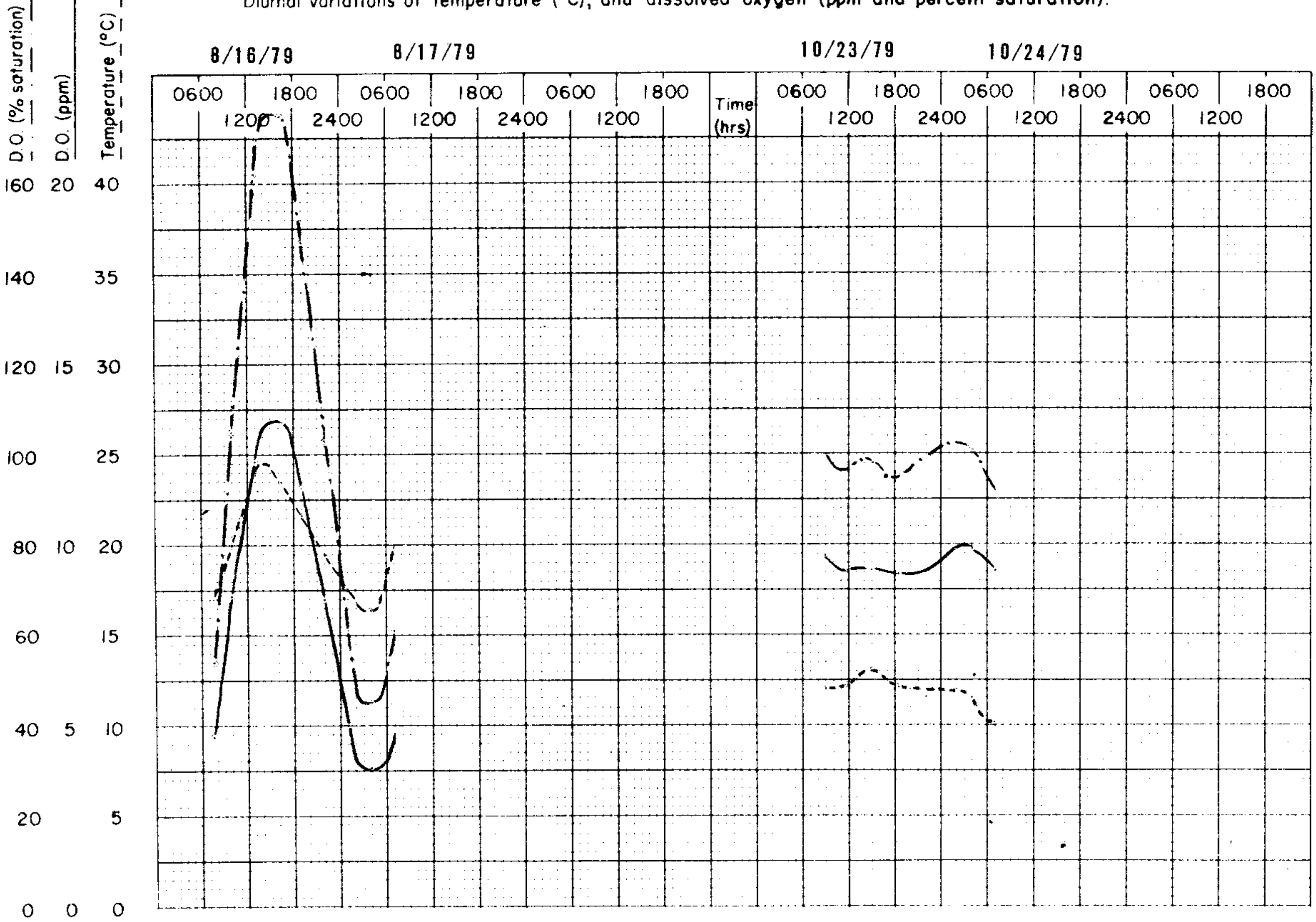


Figure 12c.

Fall River at Fall River Mills (AI 7100.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

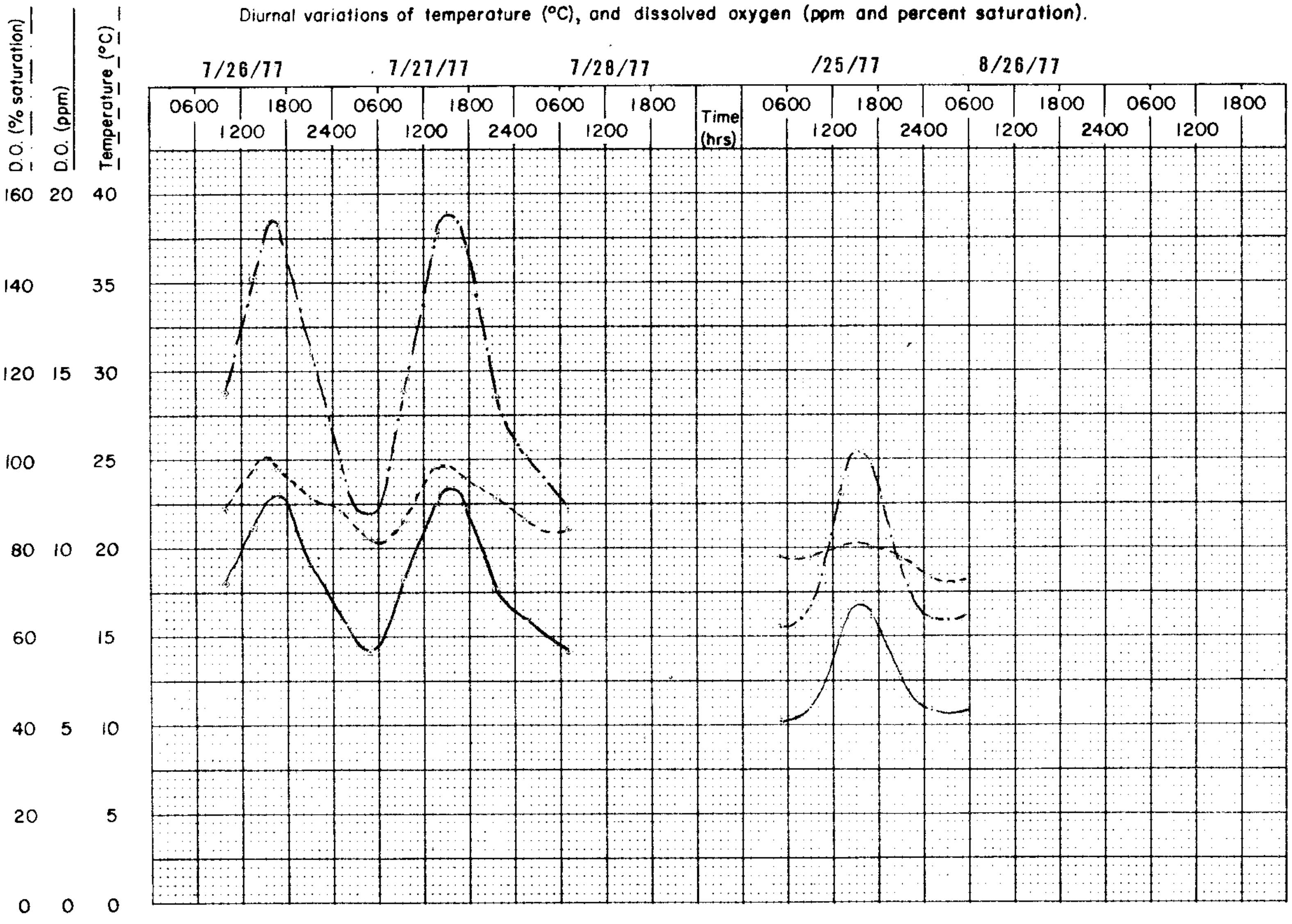


Figure 13a

Fall River at Fall River Mills (AI 7100.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

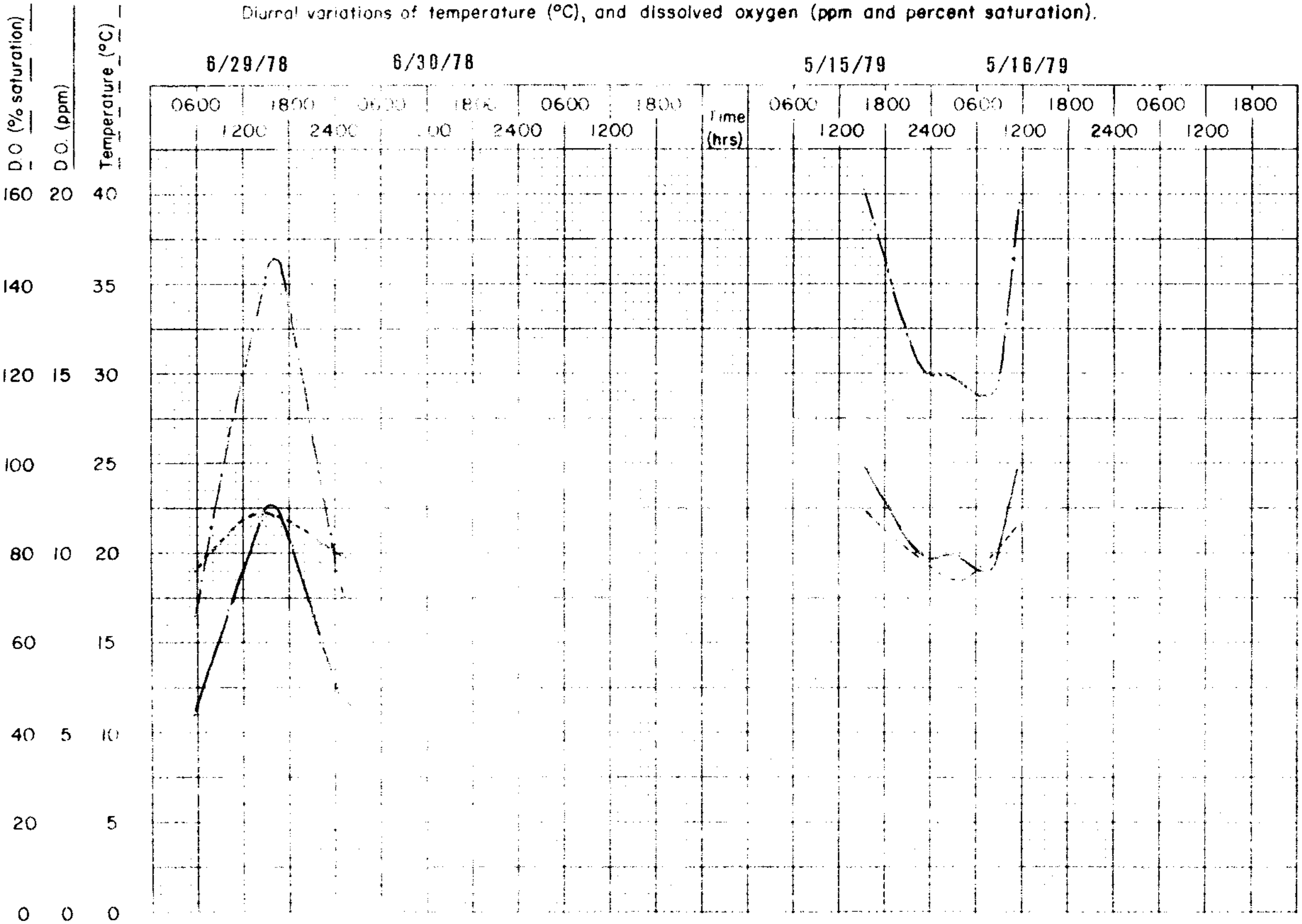


Figure 13b

Fall River at Fall River Mills (AI 7100.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

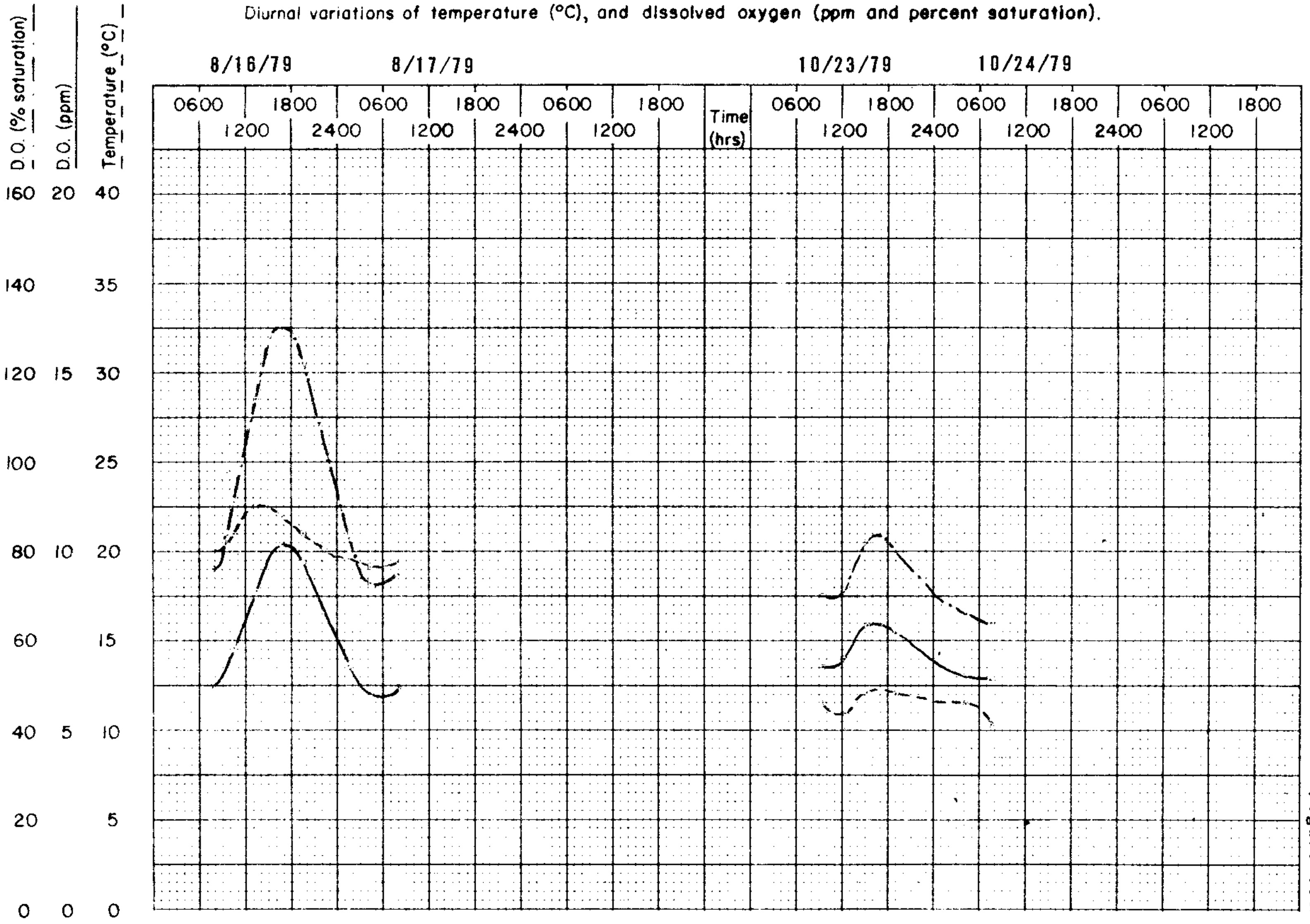


Figure 13c.

Pit River above Pit N^{o} 1 Powerhouse (AI 1225.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

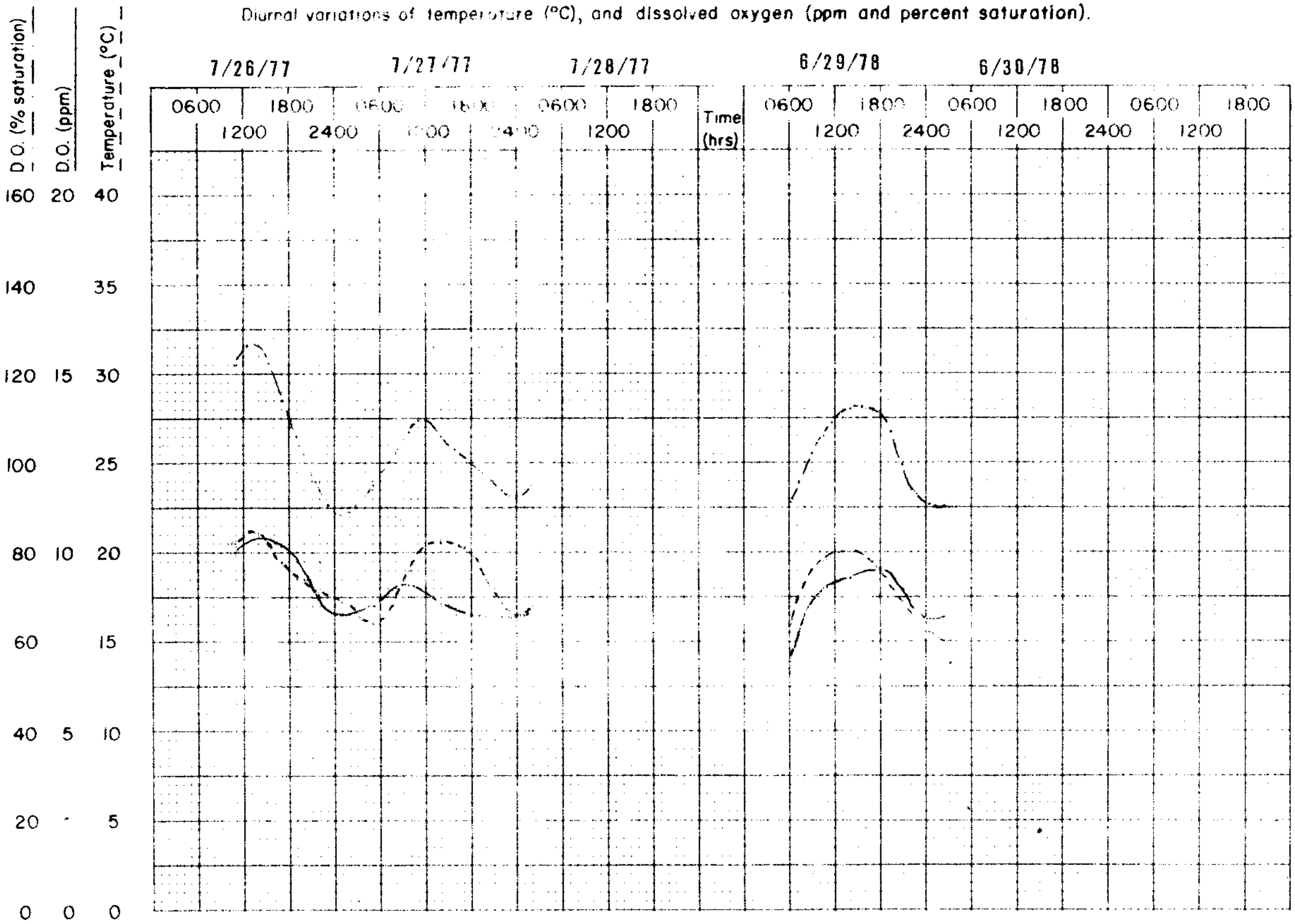


Figure 14a

Pit River above Pit N^{o} 1 Powerhouse (AI 1225.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

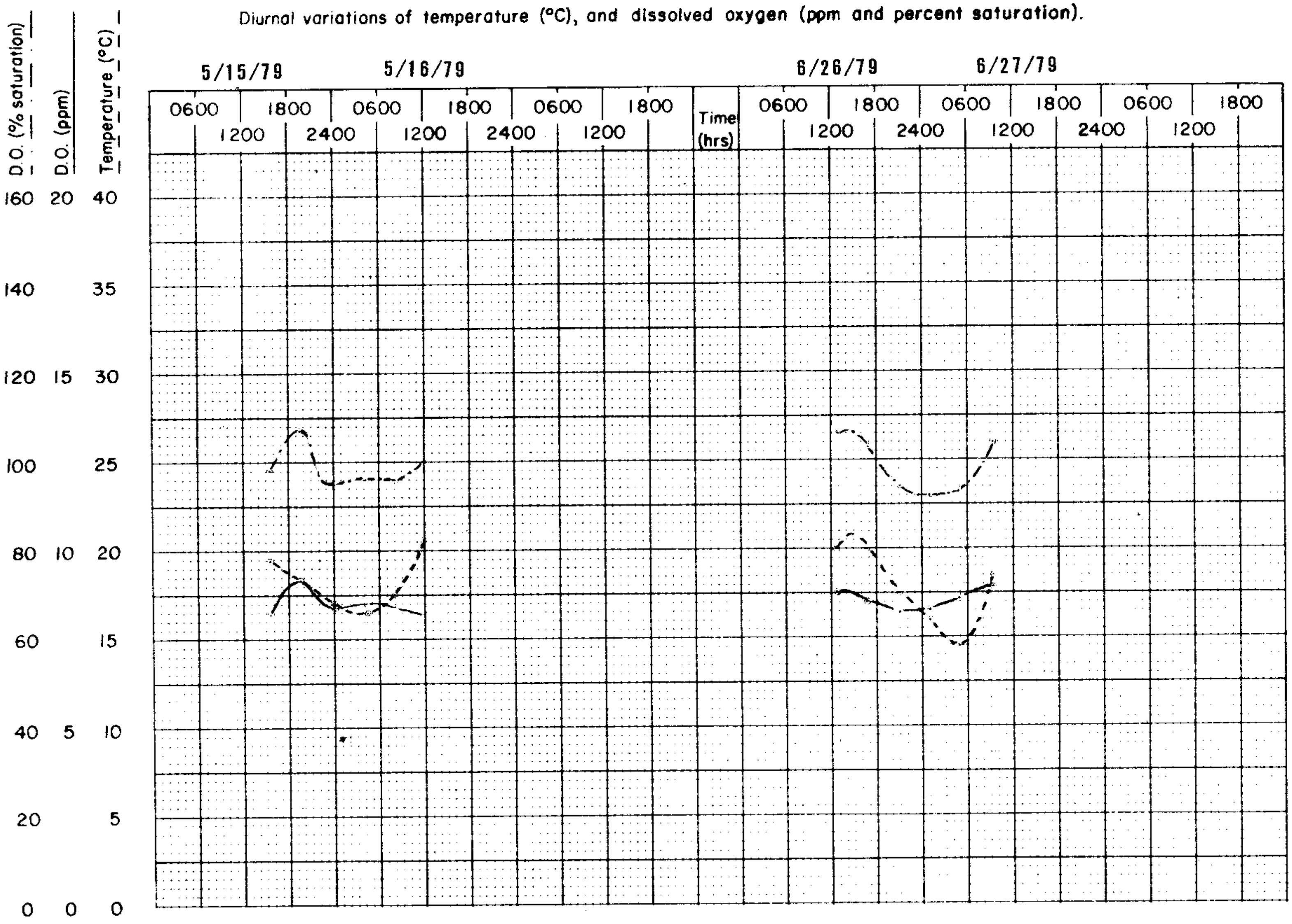


Figure 14b

Pit River above Pit No. 1 Powerhouse (AI 1225.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

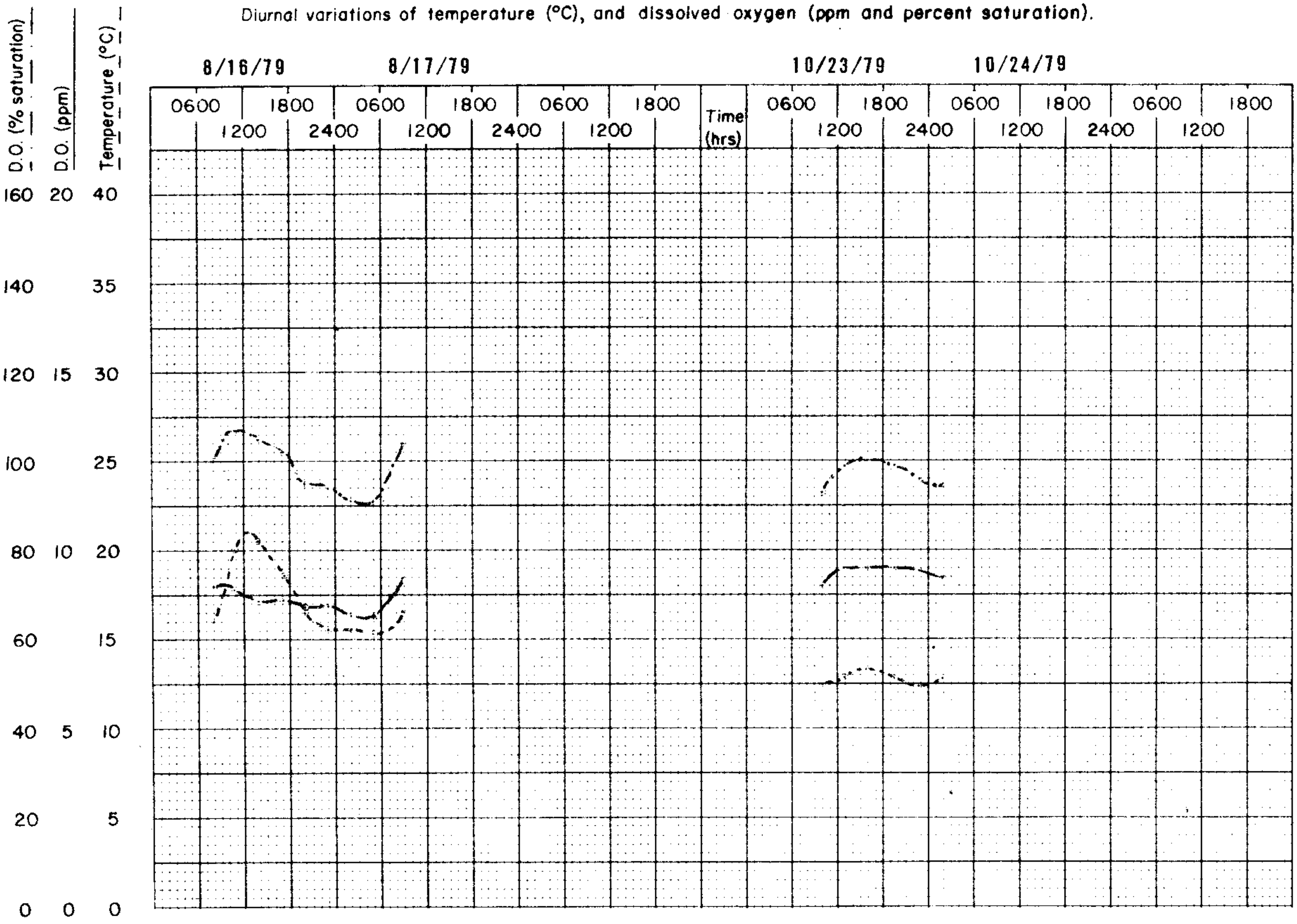


Figure 14c.

Pit River at Highway 299 (AI 1220.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

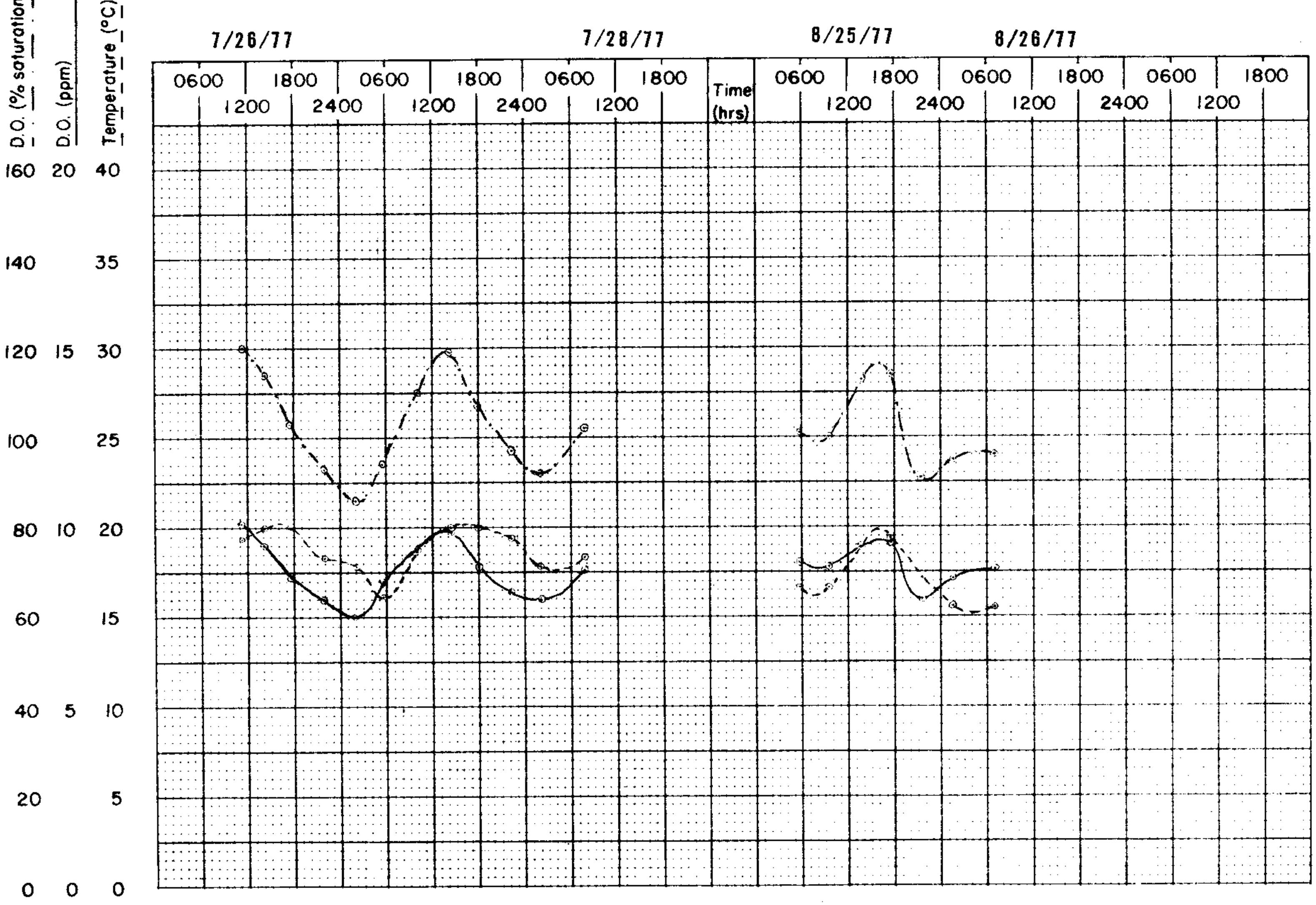


Figure 15a.

Pit River at Highway 299 (AI 1220.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

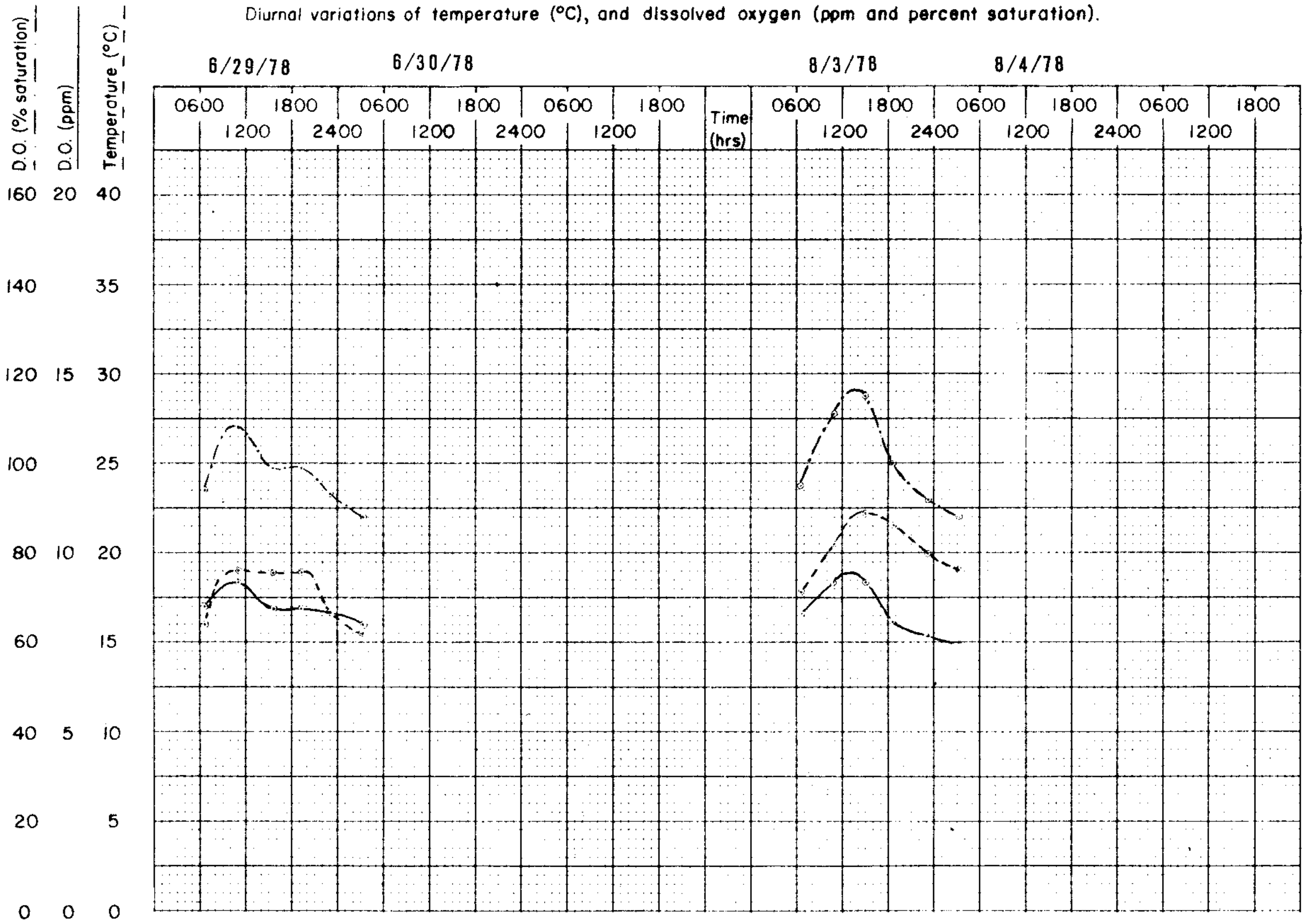


Figure 15b.

Pit River at Highway 299 (AI 1220.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

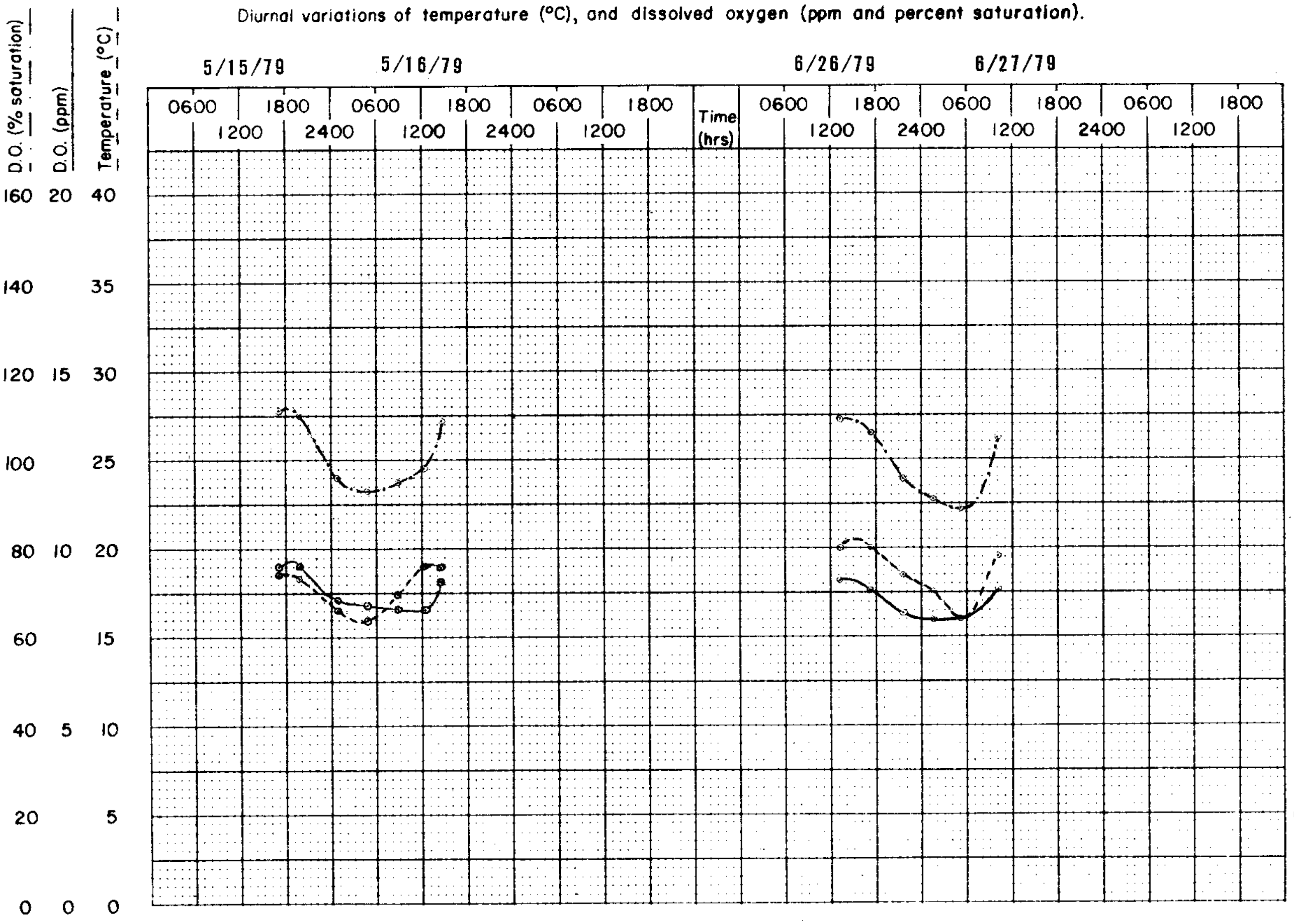


Figure 15c

Pit River at Highway 299 (AI 1220.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

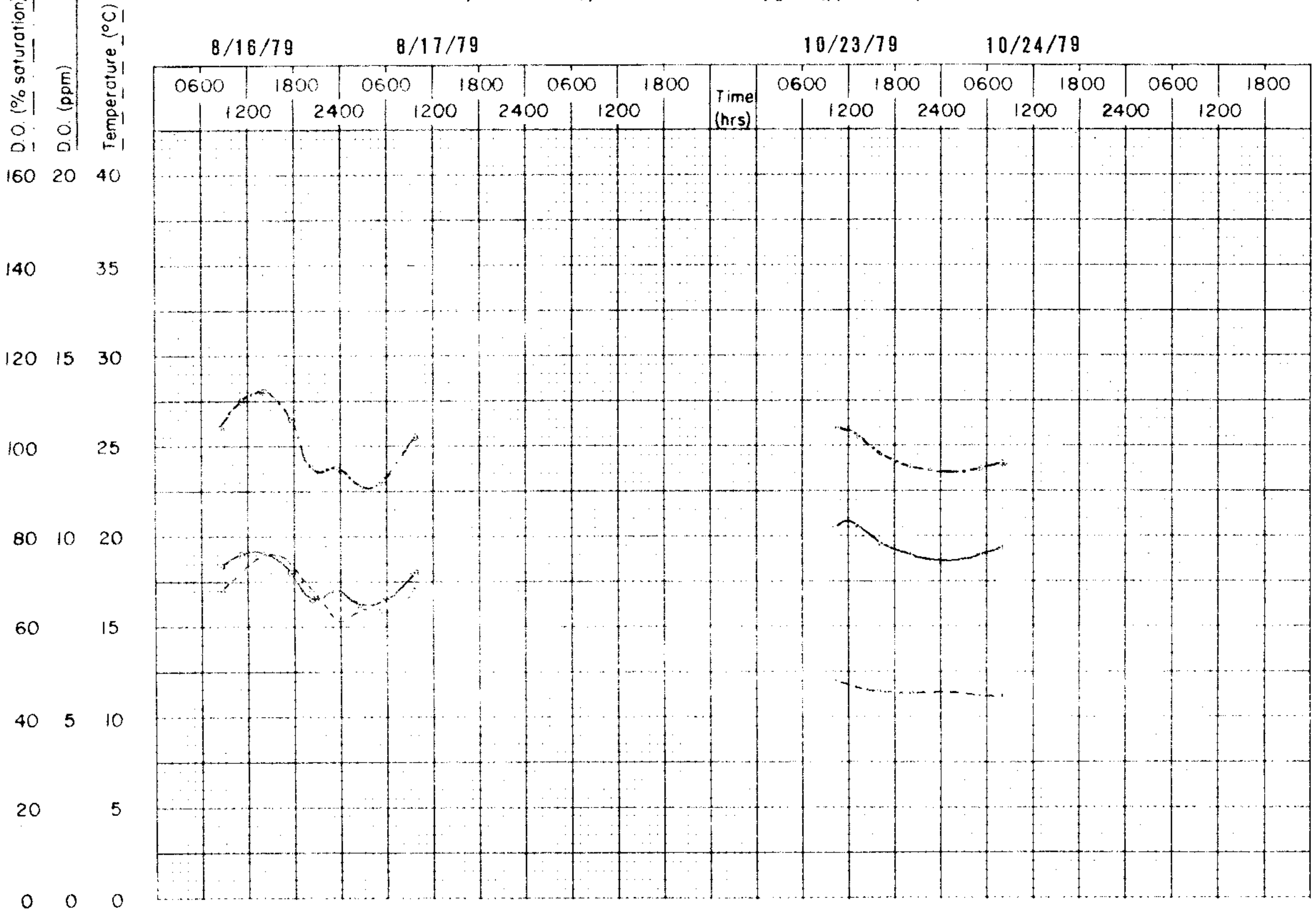


Figure 15d

Burney Creek at Burney Falls (AI 5100.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

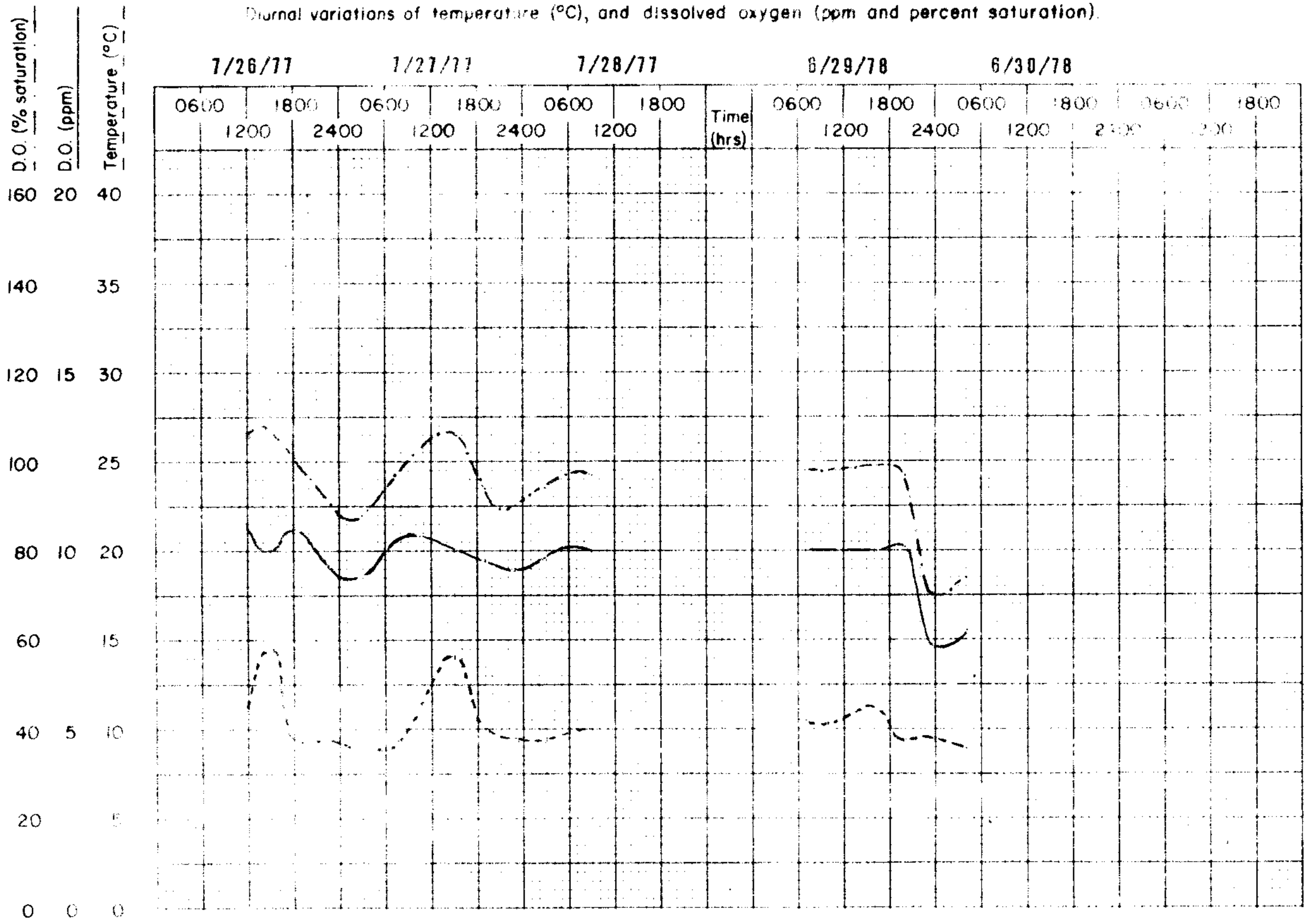


Figure 16a.

Burney Creek at Burney Falls (AI 5100.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

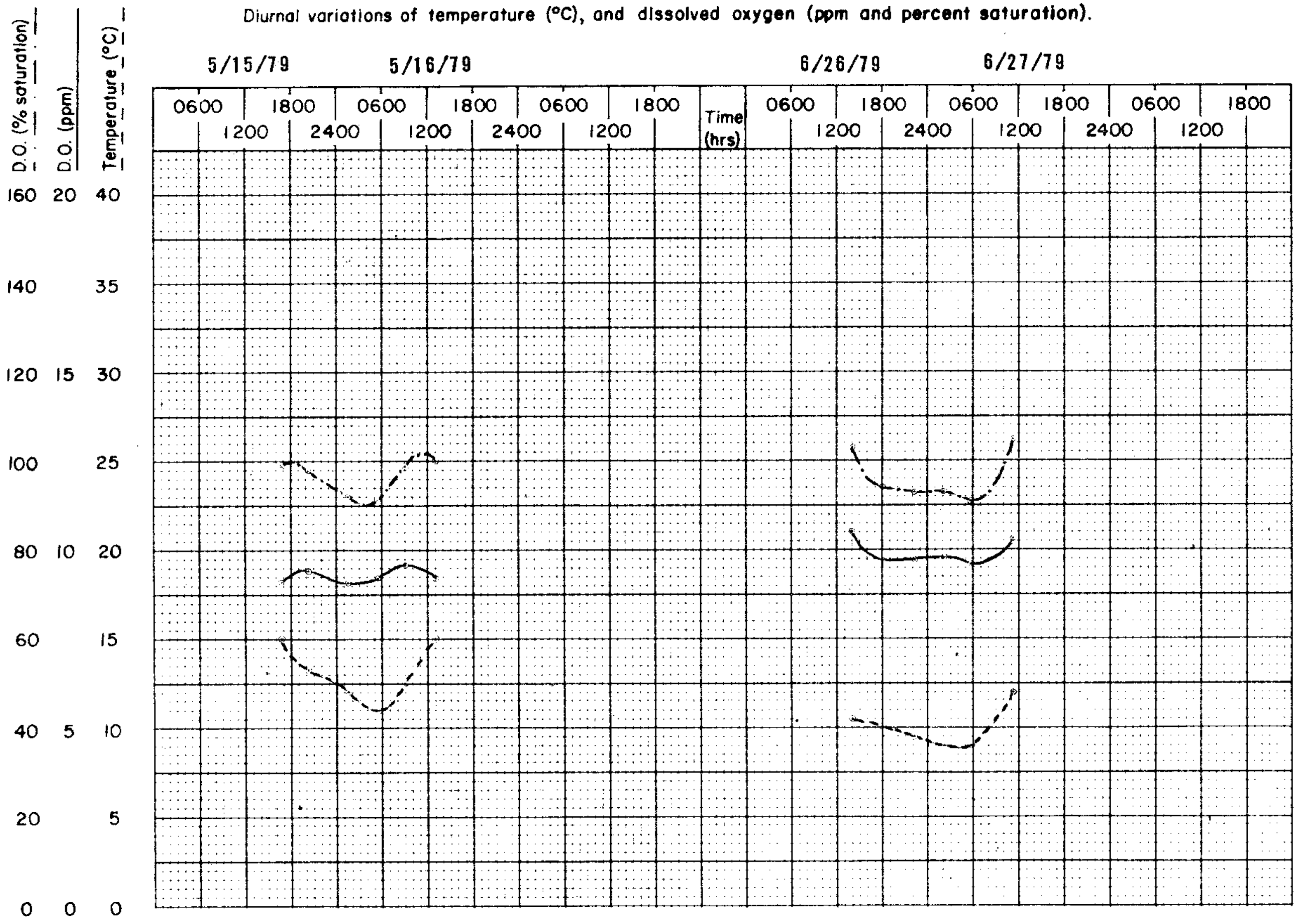


Figure 16b

Burney Creek at Burney Falls (AI 5100.00)

Diurnal variations of temperature (°C), and dissolved oxygen (ppm and percent saturation).

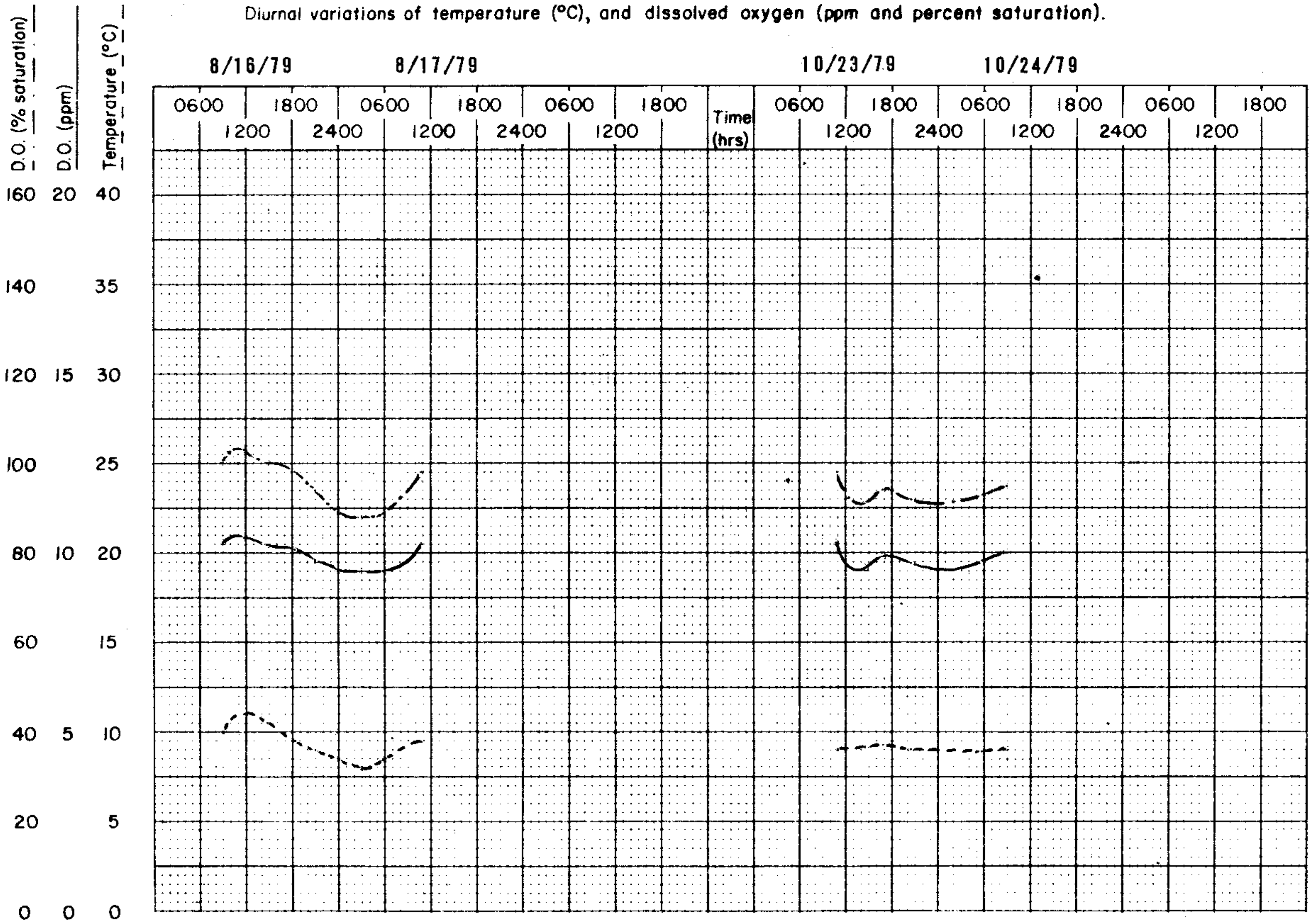


Figure 16c

Physical Characteristics

Temperature and turbidity are important characteristics that influence the Pit River's suitability for beneficial use. Each shows significant variation.

Temperature

Within the Pit River system, seasonal temperature changes are large. Monthly daytime measurements made at Station A1 1680.00 during the period 1965-1980 show a typical seasonal pattern, with a wide range of temperatures ranging from winter lows of 0° C in December, January, and February to a summer high of 28° C in July (Figure 5).

The water temperatures measured during this investigation are probably a little higher than normal, since drought-reduced flows were more easily affected by the temperatures of the surrounding air and inflowing water. Measurements made during the diel surveys at Station A1 1680.00 showed a change of less than 1° C in October, while in July the 24-hour change exceeded 7° C (Figure 6).

Highest peak temperatures and greatest diel changes in temperatures occurred in the North Fork Pit River at Centerville Road (A1 2020.00) and in the Pit River at Pittville (A1 1270.00). At each of these stations, flows and velocities are low during the summer period when maximum solar heating occurs. At Station A1 2020.00 a water temperature of 31.3° C was measured in July 1977. During that diel survey a change of more than 19° C was measured. In the same diel period at Station A1 1270.00 a maximum of 27.6° C was measured and a change of over 10° C observed. At these same two stations, diel temperature variations of less than 3° C were measured in October.

At Pit River stations upstream from Station A1 1270.00, high temperatures of 24° to 26° C were observed, and temperature variations ranged from 4.5° to 7° C. October diurnal temperature variations ranged from less than 1° to 2° C. Downstream at Stations A1 1225.00 and A1 1220.00, maximum temperatures observed in July were just over 20°C, when temperature variations of from 4° to 5° C were occurring. During the October diels, the maximum water temperatures dropped below 14° C, and diel variations were less than 3° C.

High July water temperatures and associated large diurnal fluctuation in the Pit River at Pittville and upstream are stressful to temperature-sensitive aquatic organisms and probably make this reach unsuitable for some. These higher-temperature waters are, however, more desirable for most irrigation uses.

Turbidity

Turbidity patterns in the Pit River are similar to those in other rivers of Northern California in that turbidity levels tend to increase with flow and turbidity in most rivers increases downstream. In the Pit, this pattern is also apparent but only through Station A1 1425.00 at Bieber. The stations downstream, from Pit River at Pittville (A1 1270.00) to Lake Britton, have less turbidity. This is mainly the result of inflowing ground water and surface tributaries that are clear under normal flow conditions. The discontinuity of flow in the Pit River below Big Valley during the summer contributes to the dramatic difference in turbidity between the upper and lower reaches.

Highest turbidities usually occur during the high flows of January through April. Table 2 summarized turbidity measurements for the system. As most of the measurements were made during summer low-flow conditions in a drier-than-normal period, the median values are more representative of low-flow conditions.

At these levels of turbidity, the upper Pit River waters usually look turbid, and have a brownish organic color, probably due to the presence of humic materials. The lower river waters are usually very clear.

TABLE 2

TURBIDITIES IN THE PIT RIVER SYSTEM

Station	Nephelometric Turbidity Units Maximum	Nephelometric Turbidity Units Minimum	Nephelometric Turbidity Units Median
South Fork Pit River at Alturas (A1 4010.00)	120	1	14
North Fork Pit River at Centerville Road (A1 2020.00)	85	0	3
Pit River at County Road 70 (A1 1751.00)	120	2	14
Pit River near Canby (A1 1680.00)	600	2	30
Pit River near Lookout (A1 1570.00)	150	2	12
Pit River at Bieber (A1 1425.00)	300	1	15
Pit River at Pittville (A1 1270.00)	120	1	2
Pit River above Pit 1 Powerhouse (A1 1225.00)	120	0	1
Pit River at U. S. Highway 299 (A1 1220.00)	88	0	2

Biological Characteristics

Numerous aquatic plants and animals inhabit the waters of the Pit River drainage, and many influence the water quality. Deer or deer tracks were seen in the vicinity of all stations. Cattle, horses, and antelope also use the river. These animals often contribute to the turbidity and add nutrients to the river.

Trout or warmwater fish are found throughout most of the system. At times, the fish probably contribute to turbidity and nutrient recycling rates. Vascular aquatic plants are present along much of the river, and most are bottom-attached species that can bring nutrients back into the water system from the sediments.

The detailed results of benthic organism sampling and related information on sampling methods and evaluations are included in Appendices F and G. Many of the benthic samples collected during the study indicated that portions of the Pit River were stressed ecosystems. This is indicated by low diversities and equitability factors. The seasonal variation and assemblage of organisms indicate that a major stress is caused by the great flow variations that occur during the winter storms and spring snowmelt period in the upper reaches of the river. In the lower reaches of the river, manipulation of flow for irrigation and power generation add stress to the system. At stations on the South Fork (A1 4010.00) and at Canby (A1 1680.00), silt and turbidity appear to be stressing the system.

In the benthic macroinvertebrate samples collected from the study area, collector organisms generally dominated the trophic structure, but scraper organisms were usually well represented. This indicates that particulate organic matter was the most important food source, though primary productivity may have been equally important in some areas.

FINDINGS

Significant findings of this investigation are:

1. The average annual flow of the Pit River at Canby is about 220 000 dam^3, while downstream at Lake Britton it is 2 400 000 dam^3.

2. Surface water resources of the Pit are extensively developed and used.

3. Distribution and use of waters in portions of the Pit River and many of its tributaries have been under the jurisdiction of judicial decree since the 1930s.

4. Usage depletes the flow of the Pit River, so that there is often no flow from Big Valley during the months of July, August, and September. However, flows are reestablished in Fall River Valley and tributary inflows sustain the river downstream.

5. 1977 through 1979 were very dry years in the Pit River drainage, with runoff in the river near Canby being 25 percent of normal during 1977 water year, 68 percent during 1978, and 61 percent in 1979.

6. Electrical conductivity of Pit River waters rarely exceeds 400 S/cm, and in its lower reaches is usually less than 250 μS/cm.

7. The waters of the Pit and its tributaries are strongly bicarbonate in character and generally contain low concentrations of both chlorides and sulfates.

8. Boron concentrations are usually less than 0.1 mg/l.

9. The pH of Pit River waters usually ranges from 7.0 to 9.0, with the highest values usually occurring in the summer.

10. Nutrient concentrations found in the Pit River are generally higher than those found in most other Northern California rivers.

11. Dissolved oxygen levels in the Pit River below Fall River Mills seldom drop below 5 mg/l; however, in upstream waters in the summer, levels have often dropped below 5 mg/l and were detected below 1 mg/l.

12. Diel DO concentration variations of 5 to 7 mg/l are common in the summer.

13. Total organic carbon measurements ranged from 2.3 to 37 mg/l.

14. Seasonal and diel temperature changes are prominent in the Pit River. Temperatures range from winter lows of zero to summer high above 30° C, while diel variations frequently exceed 7° C during the summer.

15. Pit River waters from Pittville (A1 1270.00) to Lake Britton are usually clear except during storm runoff periods. Upstream waters usually look turbid, with a brownish organic color.

16. In benthic macroinvertebrate samples collected from the Pit River, collector organisms generally dominated the trophic structure, but scraper organisms were usually well represented.

CONCLUSIONS

This investigation has resulted in the following conclusions:

1. As the waters of the Pit River system are extensively developed and adjudicated, future flow patterns will probably change little and will continue to vary with the annual precipitation and water crop. Increased ground water development, however, could change the flows from Alturas to Big Valley.

2. The drought conditions that prevailed during most of the study period produced below-normal runoff and poorer water quality than normal for the Pit River system.

3. Although there is large seasonal variation in the quality of Pit River waters, their mineral quality is usually good to excellent.

4. Nutrient levels in the Pit River are sufficient to support high to excessive productivity. When impounded in reservoirs, such as Lake Britton, algal blooms will develop and nuisance conditions can be expected.

5. Organics found in the river are primarily from non-human sources.

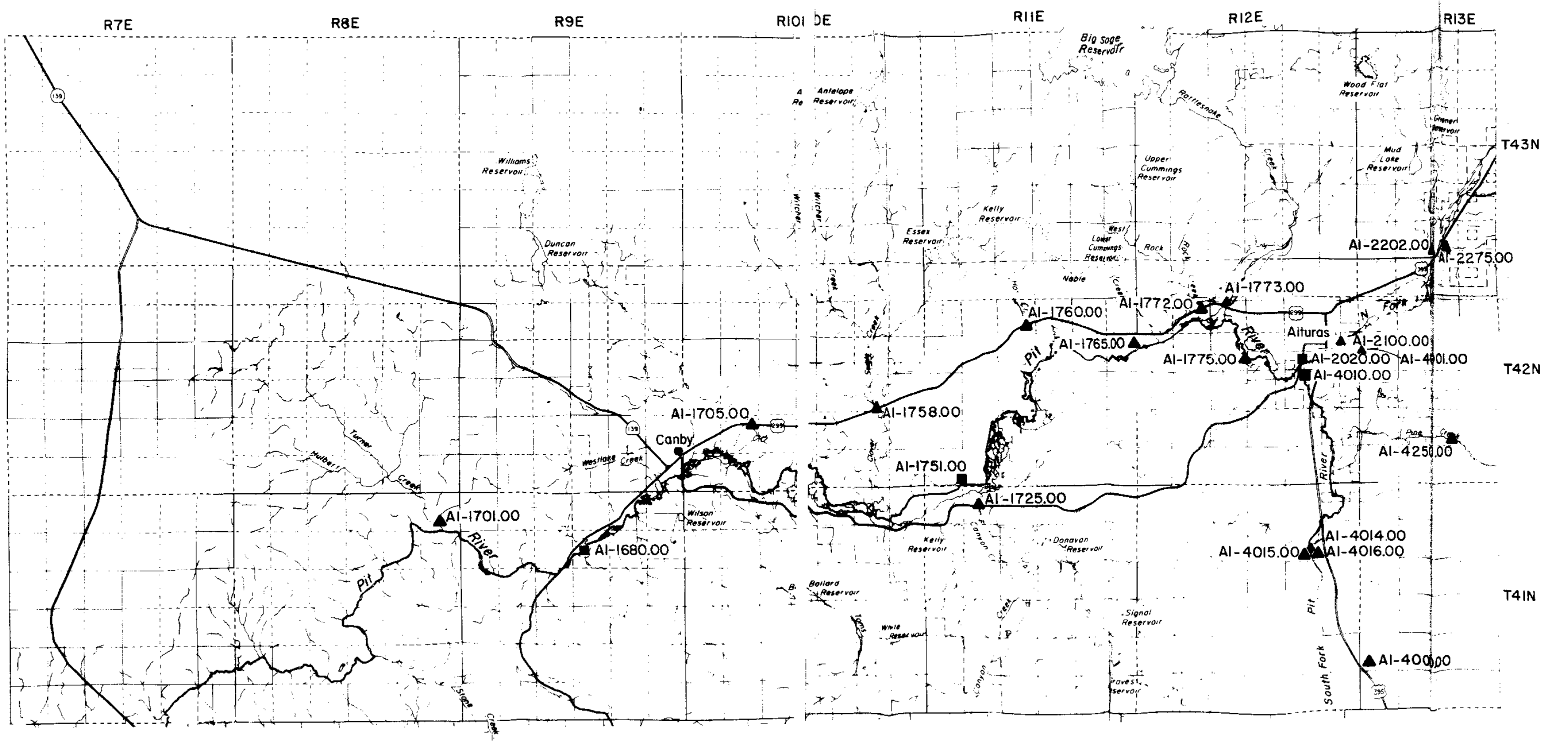
6. While dissolved oxygen concentrations in the river downstream of Fall River Mills are usually near saturation, upstream they are often depressed well below saturation in the summer, producing stress that has probably contributed to fish kills and damaged ecosystems.

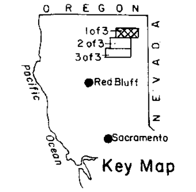
7. Seasonal and diel temperature changes are large and are an additional stress on aquatic organisms.

8. Among benthic macroinvertebrate samples collected, collector and scraper organisms dominate the trophic structure, indicating that particulate organic matter is the most important food source in the Pit River and that primary productivity is also important.

9. Any water resource management plan involving the Pit River should recognize the natural variability of quality from its upper reaches to its mouth and set realistic objectives that will protect this valuable water resource. Consideration must be given to the large seasonal and diel changes that occur in many of the water quality parameters.

Plate 1
1 of 3 sheets





Key Map

Legend

■ Study Sampling Stations

▲ Supplemental Stations.

kilometres
0 2 4 6 8 10
0 1 2 3 4 5 6
miles

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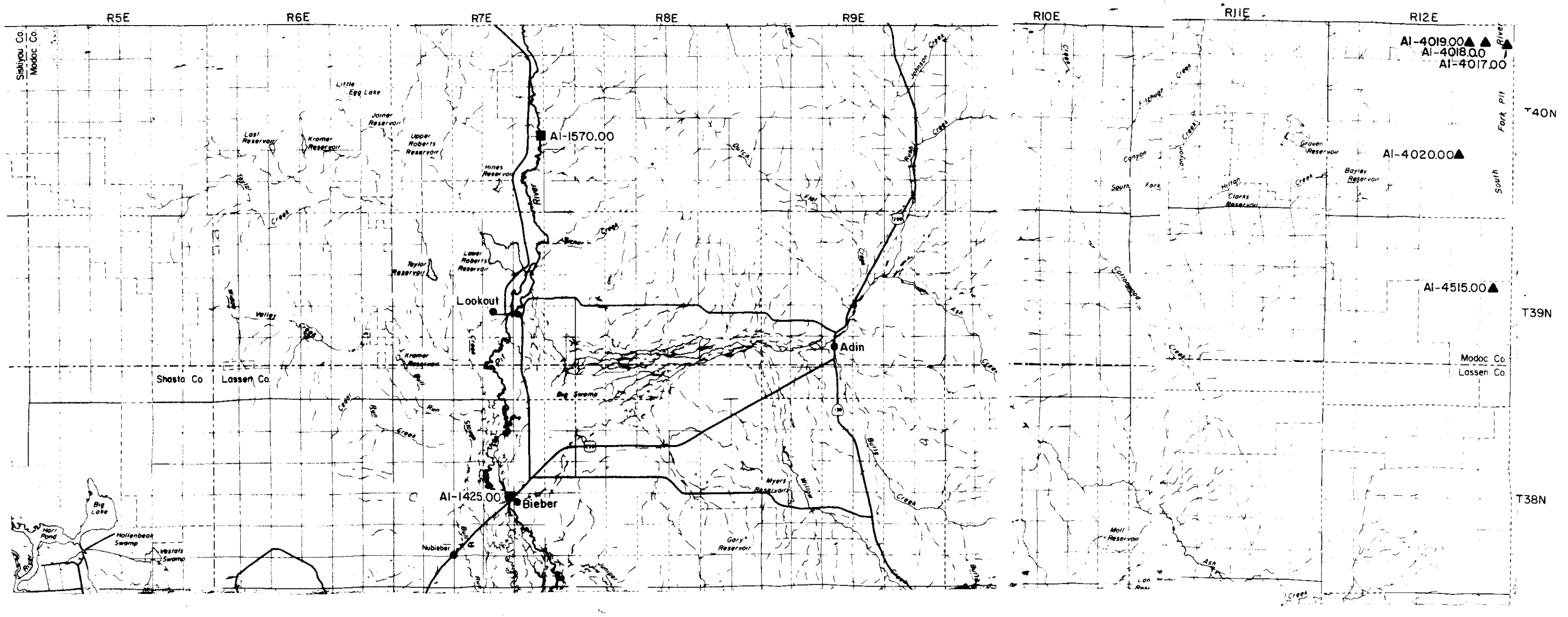
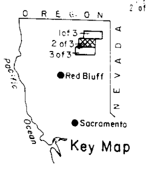
Pit River Water Quality Study 1982

Plate 1
2 of 3 sheets





Key Map

Legend

■ Study Sampling Stations

▲ Supplemental Stations.

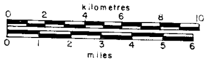


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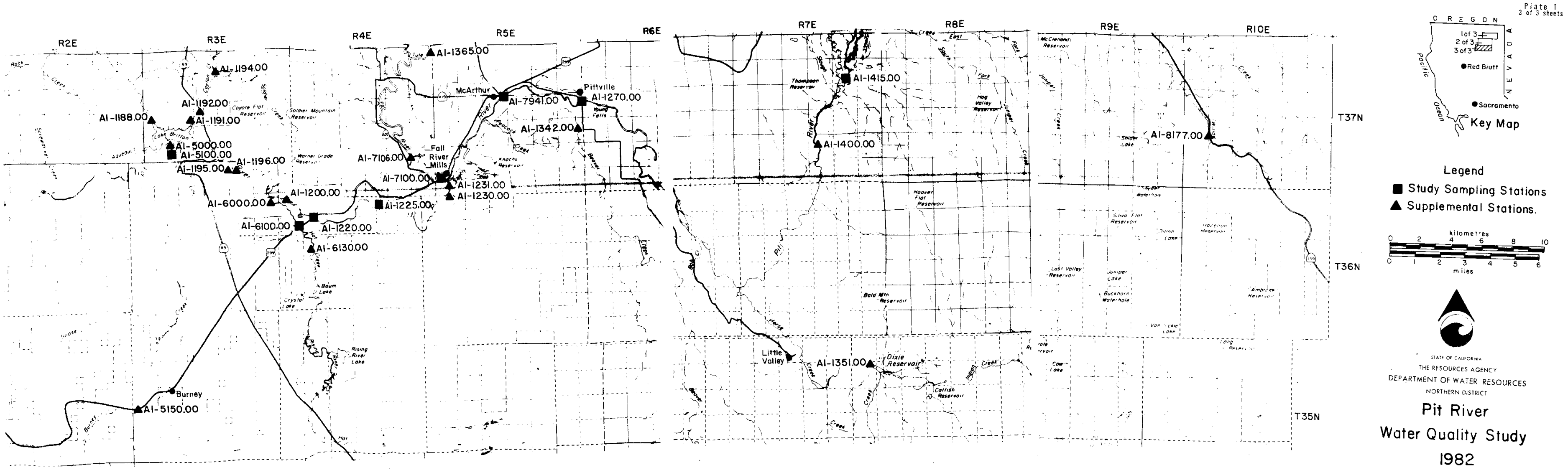
Plate 1
3 of 3 sheets



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APPENDIX A

MINERAL ANALYSIS OF SURFACE WATER

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                                    MINERAL ANALYSES OF SURFACE WATER

 DATE     SAMPLER  G.H.   DO     TEMP   FIELD                                  MILLIGRAMS PER LITER       MILLIGRAMS PER LITER
 TIME      LAB      Q     SAT         LABORATORY   MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                  DEPTH                PH    EC                               PERCENT REACTANCE VALUE    B     F     TDS    TH    SAR    REM
                                                   CA     MG     NA    K     CACO3     SO4    CL   NO3   TURB  SIO2   SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              A1 L 100.6 136.4    LK BRITTON UP SECTION 27 CG                   A23B1

08/11/77  5050           9.0  68.0F  8.6   144    9.1    6.0    12   2.0     --       3.3    4.7   --     --    --                47   0.8
 1000     5050           108  20.0C                .45    .49   .52  .05              .07    .13                --
                     0                             30     32    34    3                                                                   S

08/11/77  5050           8.2  63.3F  8.4   144    8.3    6.7    12   2.0     --       3.3    4.0   --     --    --                48   0.8
 1010     5050            93  17.4C                .41    .55   .52  .05              .07    .11                --
                    20                             27     36    34    3                                                                   S

05/09/78  5050           9.5  59.5F  8.0          --     --      12   --      73       --    2.6   --    .00    --                55
 1130     5050           104  15.3C  7.7   157                   .52          1.46             .07         3A     --
                     0                                            32                                                                      S

06/21/78  5050           9.1  65.8F  8.4   144    --     --      11   --      70       --    5.2   --    .00    --                52
 1145     5050           107  18.8C  8.2   152                   .48          1.40             .15         0A     --
                     0                                            32                                                                      S

07/24/78  5050          10.3  75.2F  8.6   151    --     --      12   --      73       --    3.9   --    .10    --                54
 1530     5050           133  24.0C  8.2   154                   .52          1.46             .11         0A     --
                                                                  33                                                                      S

08/23/78  5050           9.6  59.7F  8.6   157    7.3    8.3    12   1.9     --       1.6    4.0   --     --    --                52   0.7
 1330     5050           105  15.4C                .36    .68   .52  .05              .03    .11                --
                     0                             22     42    32    3                                                                   S

08/23/78  5050           9.0  51.1F  8.3   145    9.0    7.4    11   1.8     --       1.3    3.1   --     --    --                53   0.7
 1340     5050            88  10.6C                .45    .61   .48  .05              .03    .09                --
                    30                             28     38    30    3                                                                   S

10/24/78  5050           9.4  54.0F  8.1   184    8.8    6.8    12   2.3     --        --     --   --    .00    --                50   0.7
 1210     5050            96  12.2C                .44    .56   .52  .06                                        --
                     0                             28     35    33    4                                                                   S

05/24/79  5050           8.8  68.5F  8.6   160    10     6.0    12   2.4     71       2.0    3.0   .0    .00    --    115         50   0.7    E
 1330     5050           106  20.3C  8.1   157    .50    .49   .52  .06    1.42       .04    .08  .00           --     78          0   0.8    T
                     0                             32     31    33    4     92          3      5
05/24/79  5050           8.6  59.7F  8.0   154    10     6.0    10   2.2     --        --     --   --    .10    --                50   0.6
 1340     5050            94  15.4C                .50    .49   .44  .06                                        --
                    26                             34     33    30    4                                                                   S

07/26/79  5050           9.2  71.6F        154    9.0    7.0    12   2.4     --        --     --   --    .10    --                52   0.7
 1300     5050           115  22.0C                .45    .58   .52  .06                                        --
                     0                             28     36    32    4                                                                   S

07/26/79  5050           8.6  60.4F        143    9.0    6.0    10   2.2     --        --     --   --    .00    --                47   0.6
 1310     5050            95  15.8C                .45    .49   .44  .06                                        --
                    30                             31     34    31    4                                                                   S
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MINERAL ANALYSES OF SURFACE WATER

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 DATE      SAMPLER  G.H.     DO     TEMP    FIELD                                          MILLIGRAMS PER LITER          MILLIGRAMS PER LITER
 TIME      LAB      Q        SAT            LABORATORY   MINERAL CONSTITUENTS IN         MILLIEQUIVALENTS PER LITER
                    DEPTH                   PH     EC                                    PERCENT REACTANCE VALUE      B      F      TDS    TH     SAR     REM
                                                         CA     MG     NA     K     CACO3     SO4    CL    NO3   TURB   SIO2    SUM    NCH    ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                A1 L 100.6 136.4    LK BRITTON OP SECTION 27 CG                    A23B1 CONTINUED

12/05/79   5050              10.3   45.0F   7.7           10     7.0     13   2.6    --         --     --    --    .10    --                   54     0.8
  1315     5050                93    7.2C          164   .50    .58    .57   .07                                          --
                    0                                     29     34     33     4                                                                         S

12/05/79   5050              10.2   44.8F   7.7           10     7.0     13   2.6    --         --     --    --    .10    --                   54     0.8
  1325     5050                92    7.1C          166   .50    .58    .57   .07                                          --
                   16                                     29     34     33     4                                                                         S

               A1 L 101.3 139.9    LK BRITTON A FY XING                            A23B1

08/10/77   5050               9.7   75.0F   8.4    148   7.7    7.3     12   2.4    --        3.3    2.7    --     --     --                   49     0.7
  1230     5050               125   23.9C                .38    .60    .52   .06              .07    .08                  --
                    0                                     24     38     33     4                                                                         S

08/10/77   5050               0.0   55.6F   7.0    192   9.9    7.7     10   1.8    --        2.0    3.6    --     --     --                   56     0.6
  1240     5050                     13.1C                .49    .63    .44   .05              .04    .10                  --
                   85                                     30     39     27     3                                                                         S

02/01/78   5050              10.9   45.3F          135    --     --    9.4    --    64         --    1.8    --    .00    --                   49
  1040     5050                99    7.4C   7.7    139                 .41        1.28                .05          2A     --
                    0                                                   29                                                                               S

05/09/78   5050               9.6   60.4F   8.1           --     --     12    --    71         --    2.4    --    .00    --                   53
  1340     5050               106   15.8C   7.7    155                 .52        1.42                .07          7A     --
                    0                                                   33                                                                               S

06/21/78   5050              10.0   68.4    8.3    144    --     --     11    --    69         --    2.9    --    .00    --                   52
  1520     5050               121   20.2C   8.2    156                 .48        1.38                .08          0A     --
                    0                                                   32                                                                               S

07/24/78   5050              14.1   77.0F   9.8    151    --     --     12    --    70         --    3.2    --    .00    --                   53
  0915     5050               186   25.0C   8.2    156                 .52        1.40                .09          1A     --
                    0                                                   33                                                                               S

08/23/78   5050              10.1   68.0F   8.6    155   8.1    8.0     12   1.9    --        1.3    4.1    --     --     --                   53     0.7
  1000     5050               121   20.0C                .40    .66    .52   .05              .03    .12                  --
                    0                                     25     40     32     3                                                                         S

08/23/78   5050               0.0   57.4F   7.0    157    10    8.0    8.6   1.6    --        1.3    2.2    --     --     --                   58     0.5
  1010     5050                     14.1C                .50    .66    .37   .04              .03    .06                  --
                   79                                     32     42     24     3                                                                         S

10/24/78   5050              10.1   54.5F   8.4    183   8.8    7.0     11   2.3    --         --     --    --    .00    --                   51     0.7
  0900     5050               104   12.5C                .44    .58    .48   .06                                          --
                    0                                     28     37     31     4                                                                         S
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                                          MINERAL ANALYSES OF SURFACE WATER

 DATE     SAMPLER  G.H.   DO     TEMP    FIELD                                      MILLIGRAMS PER LITER         MILLIGRAMS PER LITER
 TIME     LAB      Q      SAT           LABORATORY   MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                  DEPTH                  PH    EC                              PERCENT REACTANCE VALUE    B     F      TDS    TH    SAR    REM
                                                     CA    MG    NA     K      CACO3     SO4   CL   NO3  TURB  SIO2    SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                 A1 L 101.3 139.9    LK BRITTON A FY XING                                  A23B1 CONTINUED

05/24/79  5050             9.1  68.5F  8.6   162     11   7.0    12   2.5       72       3.0   2.0   .0   .00    --     119     56   0.7    E
 0930     5050             110  20.3C  8.0   159    .55   .58   .52   .06     1.44       .06   .06  .00          --      81      0   0.8    T
                      0                              32    34    30     4       92         4     4                                          S

05/24/79  5050             5.0  51.6F  7.2   145     10   6.0    10   2.1       --        --    --   --   .10    --             50   0.6
 0940     5050              49  10.9C               .50   .49   .44   .05                                        --
                     82                              34    33    30     3                                                                 S

07/26/79  5050            12.1  73.6F  9.1   154     10   7.0    12   2.4       --        --    --   --   .10    --             54   0.7
 0900     5050             154  23.1C               .50   .58   .52   .06                                        --
                      0                              30    35    31     4                                                                 S

07/26/79  5050             0.0  53.6   7.0   154     12   7.0   9.0   2.2       --        --    --   --   .00    --             59   0.5
 0910     5050                  12.0C               .60   .58   .39   .06                                        --
                     85                              37    36    24     4                                                                 S

12/05/79  5050            10.4  44.4   7.7           10   6.0   9.0   2.1       --        --    --   --   .10    --             50   0.6
 1045     5050              93   6.9C        147    .50   .49   .39   .05                                        --
                      0                              35    34    27     3                                                                 S

12/05/79  5050             9.7  43.7   7.5           11   7.0    12   2.5       --        --    --   --   .10    --             56   0.7
 1055     5050              86   6.5C        164    .55   .58   .52   .06                                        --
                     79                              32    34    30     4                                                                 S

                 A1 L 101.3 140.5    LK BRITTON                                            A23B1

09/26/62  5050                                       --    --    --    --       72        --    --   --    --    --     112                 E
 1000     5000                         7.5   156                              1.44                        15E    --

07/26/77  5050            10.4  73.0F  8.8   149     --    --    --    --       --        --    --   --    --    --
 1230     5050             132  22.8C                                                                     1AF    --

07/26/77  5050            10.1  74.0F  8.4   149     --    --    --    --       --        --    --   --    --    --
 1530     5050             129  23.3C                                                                     1AF    --

07/26/77  5050            10.4  71.0F  8.4   145     --    --    --    --       --        --    --   --    --    --
 1900     5050             129  21.6C                                                                     1AF    --

07/26/77  5050            10.3  69.0F  8.1   142     --    --    --    --       --        --    --   --    --    --
 2250     5050             125  20.5C                                                                     2AF    --
```

MINERAL ANALYSES OF SURFACE WATER

A1 L 101.3 140.5 LK BRITTON

A23B1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE				MILLIGRAMS PER LITER					
07/27/77	5050		10.1	67.0	7.9	220	--	--	--	--	--	--	--	--	--	--				
0320	5050		120	19.4C											10AF	--				
07/27/77	5050		10.1	68.0F	8.8	144	--	--	--	--	--	--	--	--	--	--				
0635	5050		121	20.0C											1AF	--				
07/27/77	5050		10.3	72.0F	8.8	146	--	--	--	--	--	--	--	--	--	--				
1100	5050		129	22.2C											1AF	--				
07/27/77	5050		10.0	74.3F	8.4	152	9.9	6.3	12	2.7	66	6.7	3.4	.6	.10	--	114	50	0.7	E
1557	5050		128	23.5C	7.7	159	.49	.52	.52	.07	1.32	.14	.10	.01		--	81	0	0.8	T
							31	33	33	4	84	9	6	1						
07/27/77	5050		10.5	70.0F	8.2	154	--	--	--	--	--	--	--	--	--	--				
1940	5050		129	21.1C											2AF	--				
07/27/77	5050		10.1	69.0F	8.1	151	--	--	--	--	--	--	--	--	--	--				
2310	5050		123	20.5C											2AF	--				
07/28/77	5050		10.3	68.0F	8.1	151	--	--	--	--	--	--	--	--	--	--				
0300	5050		124	20.0C											3AF	--				
07/28/77	5050		9.9	71.0F	8.8	151	--	--	--	--	--	--	--	--	--	--				
0930	5050		123	21.6C											1AF	--				
08/25/77	5050		8.8	67.0F	8.4	149	--	--	--	--	--	--	--	--	--	--				
0615	5050		104	19.4C											2AF	--				
08/25/77	5050		9.2	67.0F	8.4	148	--	--	--	--	--	--	--	--	--	--				
1015	5050		109	19.4C											3AF	--				
08/25/77	5050		10.6	67.0F	8.1	148	--	--	--	--	--	--	--	--	--	--				
1435	5050		126	19.4C											1AF	--				
08/25/77	5050		9.3	68.0F	8.2	154	--	--	--	--	--	--	--	--	--	--				
1810	5050		112	20.0C											1AF	--				

MINERAL ANALYSES OF SURFACE WATER

A1 L 101.3 140.5 LK BRITTON A23B1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
08/25/77 2225	5050 5050		9.0 106	66.0F 18.9C	7.9	163	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/26/77 0225	5050 5050		9.3 108	65.0F 18.3C	7.9	155	--	--	--	--	--	--	--	--	-- 2AF	-- --				
08/26/77 0740	5050 5050		10.2 120	66.0F 18.9C	7.2	156	--	--	--	--	--	--	--	--	-- 2AF	-- --				
09/29/77 1100	5050 5050					149	--	--	--	--	--	--	--	--	-- 1AF	-- --				
09/29/77 1101	5050 5050		8.9 98	60.0F 15.5C		150	--	--	--	--	--	--	--	--	-- 3AF	-- --				
09/29/77 1200	5050 5050					188	--	--	--	--	--	--	--	--	-- 6AF	-- --				
09/29/77 1300	5050 5050					186	--	--	--	--	--	--	--	--	-- 4AF	-- --				
09/29/77 1400	5050 5050					149	--	--	--	--	--	--	--	--	-- 1AF	-- --				
09/29/77 1500	5050 5050					149	--	--	--	--	--	--	--	--	-- 1AF	-- --				
09/29/77 1600	5050 5050					149	--	--	--	--	--	--	--	--	-- 1AF	-- --				
09/29/77 1700	5050 5050					149	--	--	--	--	--	--	--	--	-- 1AF	-- --				
09/29/77 1800	5050 5050					149	--	--	--	--	--	--	--	--	-- 1AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 L 101.3 140.5 LK BRITTON A23B1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE				MILLIGRAMS PER LITER					
09/29/77 1900	5050 5050					151	--	--	--	--	--	--	--	--	-- 2AF	-- --				
09/29/77 2000	5050 5050					150	--	--	--	--	--	--	--	--	-- 2AF	-- --				
09/29/77 2100	5050 5050					150	--	--	--	--	--	--	--	--	-- 2AF	-- --				
09/29/77 2200	5050 5050					151	--	--	--	--	--	--	--	--	-- 3AF	-- --				
09/29/77 2300	5050 5050					151	--	--	--	--	--	--	--	--	-- 3AF	-- --				
09/30/77 0100	5050 5050					150	--	--	--	--	--	--	--	--	-- 1AF	-- --				
09/30/77 0200	5050 5050					150	--	--	--	--	--	--	--	--	-- 1AF	-- --				
09/30/77 0300	5050 5050					159	--	--	--	--	--	--	--	--	-- 2AF	-- --				
09/30/77 0900	5050 5050					151	--	--	--	--	--	--	--	--	-- 1AF	-- --				
09/30/77 1000	5050 5050					150	--	--	--	--	--	--	--	--	-- 1AF	-- --				
12/20/77	5050 5050					163	--	--	--	--	--	--	--	--	-- 7AF	-- --				
05/23/78	5050			56.0F 13.3C	7.6	130	--	--	--	--	--	--	--	--	--	-- --				

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                                      MINERAL ANALYSES OF SURFACE WATER

 DATE      SAMPLER  G.H.    DO     TEMP    FIELD                                  MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME      LAB      Q       SAT          LABORATORY   MINERAL CONSTITUENTS IN     MILLIEQUIVALENTS PER LITER
                  DEPTH                   PH     EC                               PERCENT REACTANCE VALUE     B     F      TDS    TH     SAR     REM
                                                      CA    MG    NA    K     CACO3     SO4   CL    NO3   TURB  SIO2    SUM    NCH    ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

             A1 L 101.9 138.8    LK BRITTON CPP PICNIC AREA                         A23B1

02/01/78   5050            10.1   45.7F          152    --    --    11    --     71        --    2.4   --    .00   --             52
  1220     5050              92    7.6C   7.8    156                .48          1.42             .07         2A    --
                     0                                              32                                                                        S

05/09/78   5050             9.4   60.3F   8.1    135    --    --    12    --     68        --    2.9   --    .10   --             54
  1500     5050             103   15,7C   7,5    155                .52          1,36             .08         5A    --
                     0                                              33                                                                        S

06/21/78   5050            10.2   68.5    8.3    145    --    --    11    --     69        --    1.8   --    .00   --             47
  1400     5050             123   20.3C   8.1    156                .48          1,38             .05         0A    --
                     0                                              34                                                                        S

07/24/78   5050            14.3   75.2    9.8    148    --    --    12    --     71        --    3.4   --    .00   --             52
  1315     5050             185   24.0C   8.2    155                .52          1.42             .10         1A    --
                     0                                              33                                                                        S

08/23/78   5050             9.4   68.5F   8.5    154   9.2   8.5    12   2.2     --       1.6   4.0   --    --    --             58    0.7
  1130     5050             113   20.3C                .46   .70   .52   .06              .03   .11               --
                     0                                 26    40    30     3                                                                   S

08/23/78   5050             7.4   60.6F   8.2    142    10   7.5   8.6   1.6     --       1.3   2.4   --    --    --             56    0.5
  1140     5050              82   15.9C                .50   .62   .37   .04              .03   .07               --
                    59                                 33    41    24     3                                                                   S

10/24/78   5050            10.5   54.9    8.2    182   8.9   7.0    12   2.3     --        --    --   --    .00   --             51    0.7
  1030     5050             108   12.7C                .44   .58   .52   .06                                      --
                     0                                 28    36    33     4                                                                   S

05/24/79   5050             9.2   72.1    8.6    164    10   6.0    12   2.5     72       3.0   2.0   .0    .10   --      118    50    0.7     E
  1150     5050             115   22.3C   7,9    159   .50   .49   .52   .06   1,44       .06   .06  .00          --       79     0    0.8     T
                     0                                 32    31    33     4     92         4     4
05/24/79   5050             6.5   53.8F   7.3    157    11   6.0    11   2.4     --        --    --   --    .10   --             52    0.7
  1200     5050              66   12.1C                .55   .49   .48   .06                                      --
                    59                                 35    31    30     4                                                                   S

07/26/79   5050            11.3   75.7F   9.1    154    10   7.0    12   2.4     --        --    --   --    .00   --             54    0.7
  1115     5050             147   24.3C                .50   .58   .52   .06                                      --
                     0                                 30    35    31     4                                                                   S

07/26/79   5050             0.0   55.4F   7.0    150    11   7.0   9.0   2.0     --        --    --   --    .00   --             56    0.5
  1125     5050                   13.0C                .55   .58   .39   .05                                      --
                    66                                 35    37    25     3                                                                   S

12/05/79   5050            10.5   45.5F   7.7           10   7.0    13   2.6     --        --    --   --    .10   --             54    0.8
  1145     5050              96    7.5C          166   .50   .58   .57   .07                                      --
                     0                                 29    34    33     4                                                                   S
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                                        MINERAL ANALYSES OF SURFACE WATER

 DATE    SAMPLER  G.H.   DO    TEMP   FIELD                                 MILLIGRAMS PER LITER       MILLIGRAMS PER LITER
 TIME     LAB      Q     SAT         LABORATORY  MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                 DEPTH                 PH    EC                            PERCENT REACTANCE VALUE    B     F     TDS    TH    SAR    REM
                                                  CA    MG    NA    K      CACO3    SO4   CL   NO3   TURB SIO2   SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              A1 L 101.9 138.8    LK BRITTON OPP PICNIC AREA                  A23B1 CONTINUED

12/05/79  5050            9.8  43.5F  7.3         11    7.0    12  2.6     --        --    --   --   .10   --                 56   0.7
 1155     5050             87   6.4C        166  .55   .58   .52  .07                                    --
                  66                              32    34    30    4                                                                S

              A1 L 108.7 016.9    BLUE LK NR LIKELY                           A23E3

10/03/66  5050                 61.0F  8.4         9.4   4.2   5.4  3.1     54       1.0    .6  1.0   .00   --     67      41   0.4
 1730     5000                 16.1C  8.0   108  .47   .35   .23  .08   1.08       .02   .02  .02   1E  19.0     76       0   0.3
                                                   42    31    20    7     95         2     2    2

              A1 R 139.3 029.3    DORRIS RES NR ALTURAS                       A23E2

11/17/59  5050            7.6  43.0F                10   1.9   4.8  3.2     36       5.3    .8  5.9   .01   .1             33   0.4
 1145     5050             71   6.1C  7.2   107  .50   .16   .21  .08    .72       .11   .02  .10       36.0     89       0   0.2
                                                   53    17    22    8     76        12     2   11

              A1  1188.00           CLARK C A MO                              A23B1

08/10/77  5050            8.0  78.8F  8.4   175   14    11   7.6  1.1     --        .6   1.0   --    --    --                 80   0.4
 1400     5050      1E    107  26.0C             .70   .90   .33  .03               .01   .03               --
                                                   36    46    17    2                                                                 S

02/01/78  5050           11.6  40.1   7.0    70   --    --   1.8   --     37        --    .0   --   .00   --                 33
 1200     5050             98   4.5C  7.8    74                .08         .74             .00        0A   --
                   0                                            11                                                                   S

05/09/78  5050            9.3  56.3F  7.3    57   --    --   1.9   --     31        --    .0   --   .00   --                 28
 1315     5050     100E    98  13.5C  7.7    64                .08         .62             .00        0A   --
                   0                                            13                                                                   S

06/21/78  5050            7.8  67.1F  7.6   133   --    --   3.8   --     66        --   2.8   --   .00   --                 62
 1320     5050      20E    93  19.5C  7.5   140                .17        1.32             .08        0A   --
                                                                12                                                                   S

08/23/78  5050            9.1  56.3F  7.9   176   14    11   7.4   .9     --       1.2    .8   --    --    --                 80   0.4
 0945     5050      3E     95  13.5C             .70   .90   .32  .02               .02   .02               --
                                                   36    46    16    1                                                               S

10/24/78  5050           10.2  50.0F  8.0   192   14    10   6.7  1.0     --        --    --   --   .00   --                 78   0.3
 1015     5050      3E     99  10.0C             .70   .82   .29  .03                                       --
                                                   38    45    16    2

05/24/79  5050            9.5  57.2F  7.5    86  8.0   4.0   3.0   .6     41        .0    .0   .0   .00   --     69      36   0.2   E
 1100     5050     15E    101  14.0C  7.9    88  .40   .33   .13  .02    .82       .00   .00  .00              --     40       0   0.2   T
                                                   45    38    15    2    100
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MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE				MILLIGRAMS PER LITER					
A1 1188.00				CLARK C A MC								A23B1 CONTINUED								
07/26/79	5050		8.5	66.6F	8.0	177	15	10	7.0	1.3	--	--	--	--	.00	--		78	0.3	
1100	5050	15E	100	19.2C			.75	.82	.30	.03						--				
							39	43	16	2										S
12/05/79	5050		11.3	45.1F	8.1		13	8.0	5.0	.9	--	--	--	--	.00	--		66	0.3	
1130	5050	4E	103	7.3C		149	.65	.66	.22	.02						--				
							42	43	14	1										S
A1 1191.00				CAYTON C A MO								A23B1								
08/10/77	5050		7.0	65.8F	8.0	240	16	16	7.6	1.6	--	1.8	2.0	--	--	--		105	0.3	
1530	5050	2E	82	18.8C			.80	1.32	.33	.04		.04	.06			--				
							32	53	13	2										S
05/09/78	5050		9.0	59.0	7.9	124	--	--	4.9	--	76	--	.2	--	.00	--		68		
1245	5050	30E	98	15.0C	7.8	137			.21		1.52		.01		1A	--				
		0							13											S
06/21/78	5050		8.1	68.9	7.9	128	--	--	4.5	--	66	--	1.2	--	.00	--		59		
1500	5050	15E	98	20.5C	7.9	135			.20		1.32		.03		0A	--				
									14											S
08/23/78	5050		9.8	57.2F	8.0	161	14	9.7	4.6	1.6	--	1.0	1.5	--	--	--		75	0.2	
1230	5050	10E	104	14.0C			.70	.80	.20	.04		.02	.04			--				
							40	46	11	2										S
10/24/78	5050		10.3	47.3	7.9		13	10	5.0	1.4	--	--	--	--	.00	--		75	0.3	
1110	5050	10E	96	8.5C			.65	.82	.22	.04						--				
							38	47	13	2										S
05/24/79	5050		9.4	57.2	7.5	113	10	6.0	4.0	.8	54	.0	.0	.0	.00	--	84	50	0.2	E
1130	5050	35E	100	14.0C	7.9	112	.50	.49	.17	.02	1.08	.00	.00	.00		--	53	0	0.2	T
							42	42	14	2	100									
07/26/79	5050		8.4	64.8F	8.1	213	19	13	6.0	2.1	113	.0	.0	.5	.00	--	156	101	0.3	E
1200	5050	20E	97	18.2C	8.2	214	.95	1.07	.26	.05	2.26	.00	.00	.01		--	108	0	0.4	T
							41	46	11	2	100									
12/05/79	5050			41.4F	7.9		13	9.0	5.0	1.0	--	--	--	--	.00	--		70	0.3	
1215	5050	20E		5.2C		152	.65	.74	.22	.03						--				
							40	45	13	2										S

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                                          MINERAL ANALYSES OF SURFACE WATER

 DATE      SAMPLER  G.H.   DO    TEMP    FIELD                                      MILLIGRAMS PER LITER          MILLIGRAMS PER LITER
 TIME      LAB      Q      SAT          LABORATORY  MINERAL CONSTITUENTS IN         MILLIEQUIVALENTS PER LITER
                    DEPTH                 PH    EC                                  PERCENT REACTANCE VALUE    B     F     TDS    TH    SAR    REM
                                                    CA     MG     NA     K     CACO3    SO4    CL    NO3  TURB  SIO2   SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                A1  1192.00           CAYTON C A HWY 89                         A23B1

07/17/79  5050            7.2  67.1F  7.5   340     31     20     12    3.9    180       .0     .0    .4   .00   --    270    160   0.4    E
 0850     5050      2E     87  19.5C  7.9   337   1.55   1.64    .52    .10   3.60      .00    .00   .01         --    175      0   0.8    T
                                                    41     43     14      3    100                                                       S

                A1  1194.00           CAYTON C BL SPR                           A23B1

07/26/79  5050            7.6  52.2F  8.6   198     18     11    7.0    1.4    101       .0     .0    .0   .00   --    135     90   0.3
 0715     5050     10E     77  11.2C  8.3   197    .90    .90    .30    .04   2.02      .00    .00   .00         --     98      0   0.5    T
                                                    42     42     14      2    100

                A1  1195.00           WEST SPR A INO                            A23B1

08/11/77  5050           10.1  49.6F  7.3   113    7.2    5.8    7.0    1.3     --      2.1    1.0    --    --   --           42   0.5
 0950     5050      8E     97   9.8C                .36    .48    .30    .03             .04    .03               --
                                                    31     41     26      3                                                              S

05/09/78  5050           10.4  49.1   7.3            --     --    6.5     --     57       --     .8    --   .00   --           45
 1110     5050     50E    100   9.5C  7.7   116                   .28           1.14             .02         0A    --
                     0                                            24                                                                     S

06/21/78  5050           10.5  49.1   7.3   113      --     --    6.5     --     57       --     .3    --   .00   --           44
 1130     5050     40E    101   9.5C  7.4   123                   .28           1.14             .01         0A    --
                                                                  24                                                                     S

08/23/78  5050           10.1  48.4F  7.5   120    7.0    6.9    6.4    1.3     --      1.2     .8    --    --   --           46   0.4
 1330     5050     20E     96   9.1C                .35    .57    .28    .03             .02    .02               --
                                                    28     46     23      2                                                              S

10/24/78  5050           10.2  48.6   7.2   145    8.0    5.6    6.2    1.5     --       --     --    --   .00   --           43   0.4
 1235     5050     30E     97   9.2C                .40    .46    .27    .04                                      --
                                                    34     39     23      3                                                              S

05/24/79  5050           10.4  48.2F  7.3   120    8.0    6.0    6.0    1.7     56      1.0     .0    .0   .00   --     99     44   0.4    E
 1300     5050     15E     98   9.0C  7.8   117    .40    .49    .26    .04   1.12      .02    .00   .00         --     56      0   0.4    T
                                                    34     41     22      3     98        2

07/26/79  5050           10.1  47.7F  7.1   118    8.0    6.0    6.0    1.7     --       --     --    --   .00   --           44   0.4
 1400     5050     35E     95   8.7C                .40    .49    .26    .04                                      --
                                                    34     41     22      3                                                              S

12/05/79  5050           10.2  47.5F  7.5          8.0    6.0    6.0    1.7     --       --     --    --   .00   --           44   0.4
 1300     5050             96   8.6C        119    .40    .49    .26    .04                                      --
                                                    34     41     22      3                                                              S
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                                                   MINERAL ANALYSES OF SURFACE WATER

DATE      SAMPLER  G.H.    DO     TEMP    FIELD                                      MILLIGRAMS PER LITER       MILLIGRAMS PER LITER
TIME      .LAB     Q       SAT          LABORATORY   MINERAL CONSTITUENTS IN         MILLIEQUIVALENTS PER LITER
                   DEPTH                  PH    EC                                   PERCENT REACTANCE VALUE     B     F      TDS    TH    SAR     REM
                                                      CA     MG     NA     K         CACO3    SO4   CL    NO3   TURB  SIO2    SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

               A1  1196.00          EAST SPR A MO                                         A23B1

08/11/77  5050            10.1  49.6F  7.5   109     7.5    5.2    7.0    1.4      --      2.8   1.4   --     --    --                  40   0.5
  0930    5050     10E      97   9.8C                 .37    .43    .30    .04              .06   .04                 --
                                                       32     38     26      4                                                                   S

05/09/78  5050            10.4  48.2F  7.5            --     --     6.5    --       56       --    .9   --    .00    --                  44
  1100    5050     50E      98   9.0C  7.8   117                    .28           1.12              .03         0A    --
                     0                                               24                                                                          S

08/23/78  5050            10.1  49.5F  7.9   116     8.5    5.6    6.6    1.6      --      1.3   1.3   --     --    --                  44   0.4
  1300    5050     30E      97   9.7C                 .42    .46    .29    .04              .03   .04                 --
                                                       35     38     24      3                                                                   S

10/24/78  5050            10.3  48.6   7.3   139     7.6    5.6    6.7    1.7      --       --    --   --    .00    --                  42   0.4
  1230    5050     30E      98   9.2C                 .38    .46    .29    .04                                        --
                                                       32     39     25      3                                                                   S

05/24/79  5050            10.3  49.1   7.5   118     8.0    6.0    7.0    1.8      54      1.0    .0   .0   .00    --           99     44   0.5     E
  1255    5050     20E      99   9.5C  7.9   114      .40    .49    .30    .05    1.08      .02   .00  .00         --           56      0   0.4     T
                                                       32     40     24      4      98        2                                                       S

07/26/79  5050            10.2  48.4F  7.5   114     8.0    6.0    7.0    1.8      --       --    --   --    .00    --                  44   0.5
  1345    5050     50E      97   9.1C                 .40    .49    .30    .05                                        --
                                                       32     40     24      4                                                                   S

12/05/79  5050            10.2  48.0F  7.5           8.0    5.0    7.0    1.7      --       --    --   --    .00    --                  40   0.5
  1305    5050              96   8.9C        116      .40    .41    .30    .04                                        --
                                                       35     36     26      3                                                                   S

               A1  1200.00          PIT R A LK BRITTON                                    A23B1

05/09/78  5050             9.4  59.0F  8.2   137      --     --     13    --       76       --   3.4   --    .00    --                  55
  1010    5050             102  15.0C  7.5   165                    .57           1.52              .10         7A    --
                     0                                               34                                                                          S

               A1  1220.00          PIT R A HY 299                                        A23B1

09/26/62  5050                                        --     --     --    --       75       --    --   --     --    --    120                          E
  0900    5000                         7.9   165                                  1.50                          20E   --

07/26/77  5050            10.1  67.0F  8.7   155      --     --     --    --       --       --    --   --     --    --
  1115    5050   1200E     120  19.4C  8.4                                                                      1AF   --

07/26/77  5050             9.5  68.0F  8.2   160      --     --     --    --       76       --    --   --     --    --
  1410    5050             114  20.0C  8.5                                        1.52                          2AF   --
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MINERAL ANALYSES OF SURFACE WATER

A1 1220.00 PIT R A HY 299 A23B1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE						MILLIGRAMS PER LITER			
07/26/77 1730	5050 5050		8.6 103	68.0F 20.0C	8.8 8.4	161	--	--	--	--	--	--	--	--	-- 1AF	-- --				
07/26/77 2150	5050 5050		8.0 93	65.0F 18.3C	8.1 8.3	156	--	--	--	--	--	--	--	--	-- 2AF	-- --				
07/27/77 0200	5050 5050		7.5 86	64.0F 17.8C	8.1 7.7	162	--	--	--	--	78 1.56	--	--	--	-- 2AF	-- --				
07/27/77 0530	5050 5050		8.5 94	61.0 16.1C	8.1 7.9	170	--	--	--	--	--	--	--	--	-- 1AF	-- --				
07/27/77 1000	5050 5050		9.4 110	66.0F 18.9C	8.3 8.5	151	--	--	--	--	--	--	--	--	-- 1AF	-- --				
07/27/77 1420	5050 5050	100E	9.9 119	68 F 20 C	8.7 7.7	155 171	9.9 .49 28	6.7 .55 32	14 .61 35	2.9 .07 4	75 1.50 88	2.8 .06 4	4.7 .13 8	1.1 .02 1	.10 2AF	-- --	123 87	52 0	0.8 1.0	E T
07/27/77 1805	5050 5050		8.9 107	68.0F 20.0C	8.7 8.0	166	--	--	--	--	--	--	--	--	-- 2AF	-- --				
07/27/77 2220	5050 5050		8.2 97	67.0F 19.4C	8.1 7.7	165	--	--	--	--	--	--	--	--	-- 3AF	-- --				
07/28/77 0205	5050 5050		8.0 92	64.0F 17.8C	7.7 7.9	162	--	--	--	--	74 1.48	--	--	--	-- 3AF	-- --				
07/28/77 0745	5050 5050		8.8 102	65.0 18.3C	8.2 7.8	170	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/25/77 0540	5050 5050	1200E	9.0 101	62.0F 16.7C	7.4 7.8	164	--	--	--	--	--	--	--	--	-- 2AF	-- --				
08/25/77 0930	5050 5050		8.9 100	62.0F 16.7C	8.0 7.8	159	--	--	--	--	--	--	--	--	-- 2AF	-- --				

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                                   MINERAL ANALYSES OF SURFACE WATER

 DATE      SAMPLER  G.H.    DO     TEMP    FIELD                                     MILLIGRAMS PER LITER         MILLIGRAMS PER LITER
 TIME      LAB      Q       SAT           LABORATORY   MINERAL CONSTITUENTS IN       MILLIEQUIVALENTS PER LITER
                    DEPTH                  PH     EC                                 PERCENT REACTANCE VALUE     B     F       TDS    TH     SAR     REM
                                                         CA     MG     NA     K      CACO3     SO4    CL   NO3   TURB  SIO2     SUM    NCH    ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              A1  1220.00           PIT R A HY 299                                 A2381 CONTINUED

08/25/77  5050              9.5   66.0F   8.2    162     --     --     --     --      77       --     --   --     --    --
  1340    5050              113   18.9C   7.6                                       1.54                         5AF   --                                    S

08/25/77  5050              9.6   67.0F   8.4    161     --     --     --     --      --       --     --   --     --    --
  1730    5050              114   19.4C   7.8                                                                    5AF   --

08/25/77  5050              8.0   63.0F   7.7    166     --     --     --     --      --       --     --   --     --    --
  2130    5050               91   17.2C   7.7                                                                    2AF   --

08/26/77  5050              8.6   61.0F   7.6    165     --     --     --     --      --       --     --   --     --    --
  0130    5050               95   16.1C   7.8                                                                    1AF   --

08/26/77  5050              8.8   60.0F   8.3    168     --     --     --     --      --       --     --   --     --    --
  0700    5050               96   15.5C   7.7                                                                    1AF   --

09/29/77  5050              8.9   61.0F          154     --     --     --     --      71       --     --   --     --    --
  1400    5050     1350E     99   16.1C   7.5                                       1.42                         1AF   --                                    S

10/05/77  5050              9.5   55.0F   7.9            --     --     --     --      --       --     --   --     --    --
  0700    5050     100E      98   12.8C                                                                                --

04/11/78  5050              9.5   56.3F          153     --     --     --     --      67       --     --   --     --    --
  1800    5050     3000E    100   13.5C   7.7                                       1.34                         18AF  --                                    S

05/23/78  5050                    60.0    8.4    160     --     --     12     --      73       --    3.9   --    .10    --                54
          5050                    15.5C   8.2                          .52          1.46                   .11                 --                                    S
                                                                        33

06/29/78  5050              8.5   60.8F   8.0    162     --     --     --     --      --       --     --   --     --    --
  0630    5050               94   16.0C                                                                          1AF   --

06/29/78  5050              9.2   66.2F   8.2    160     --     --     13     --      76       --    3.2   --    .00    --                52
  1105    5050              108   19.0C   8.0                          .57          1.52                   .09   1AF   --                                    S
                                                                        25

06/29/78  5050              8.4   66.0F   8.4    147     --     --     --     --      --       --     --   --     --    --
  1530    5050               99   18.9C                                                                          1AF   --
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MINERAL ANALYSES OF SURFACE WATER

A1 1220.00 PIT R A HY 299 A23B1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
06/29/78 1915	5050 5050		8.4 99	66.0F 18.9C	8.4	142	--	--	--	--	--	--	--	--	-- 1AF	-- --				
06/29/78 2310	5050 5050		8.3 93	62.0F 16.7C	7.7	148	--	--	--	--	--	--	--	--	-- 1AF	-- --				
06/30/78 0315	5050 5050		8.0 88	60.0F 15.5C	7.7	155	--	--	--	--	--	--	--	--	-- 1AF	-- --				
07/11/78 1600	5050 5050	 1000E	9.6 115	68.0F 20.0C	8.9	154	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/03/78 0635	5050 5050		8.3 95	64.0F 17.8C	7.9	167	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/03/78 1050	5050 5050		9.2 111	68.9F 20.5C	8.2 8.0	163	--	--	14 .61 37	--	78 1.56	--	3.0 .08	--	.00 1AF	-- --		52		S
08/03/78 1500	5050 5050		9.2 115	72.0 22.2C	8.4	157	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/03/78 1835	5050 5050		8.1 100	71.0F 21.6	8.4	155	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/03/78 2315	5050 5050		7.7 92	68.0F 20.0C	8.7	153	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/04/78 0310	5050 5050		7.5 88	66.0F 18.9C	7.5	155	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/23/78 1530	5050 5050	 400E	9.8 112	63.7F 17.6C	8.4 8.5	163	10 .50 28	7.3 .60 34	14 .61 34	2.3 .06 3	70 1.40	1.2 .02	4.2 .12	--	-- 1AF	-- --	 81	55 0	0.8 0.9	S
09/21/78 1230	5050 5050		10.4 111	57.6F 14.2C	8.4 7.9	187	--	--	--	--	71 1.42	--	--	--	-- 1AF	-- --				S

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                                    MINERAL ANALYSES OF SURFACE WATER

 DATE     SAMPLER  G.H.    DO    TEMP    FIELD                                        MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME      LAB      Q      SAT          LABORATORY   MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                  DEPTH                  PH    EC                             PERCENT REACTANCE VALUE    B     F      TDS    TH     SAR     REM
                                                     CA     MG     NA    K     CACO3      SO4   CL   NO3  TURB  SIO2   SUM    NCH    ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              A1  1220.00          PIT R A HY 299                                   A23B1 CONTINUED

10/24/78  5050            11.0  55.4F  8.3   181   8.8    7.0    14   2.4     71        --    --   --   .00   --            51    0.9
  1410    5050    350E     114  13.0C  7.9         .44    .58   .61   .06   1.42                        1AF   --             0    1.0
                                                    26     34    36     4                                                               S

10/26/78  5050            10.5  54   F  8.1          --     --    --    --     --        --    --   --    --   --
  1030    5050    800E     107  12   C                                                                 8AF   --

01/17/79  5050            10.4  43.7F  7.9   180    --     --    --    --     72        --    --   --    --   --
  1550    5050   1000E      93   6.5C  7.5                                   1.44                        2AF   --
                                                                                                                                        S

04/05/79  5050            10.1  55   F  8.3          --     --    --    --     --        --    --   --    --   --
  1645    5050   1500E     105  13   C                                                                 8AF   --

05/15/79  5050             9.5  65.5F  8.7   160    --     --    --    --     --        --    --   --    --   --
  1555    5050             111  18.6C                                                                  3AF   --

05/15/79  5050             9.5  64.9F  8.7   165    --     --    --    --     --        --    --   --    --   --
  1945    5050             110  18.3C                                                                  3AF   --

05/16/79  5050             8.6  61.7F  8.6   175    --     --    --    --     --        --    --   --    --   --
  0040    5050              96  16.5C        175                                                       3AF   --

05/16/79  5050             8.4  60.8F  8.5   180    --     --    --    --     74        --    --   --    --   --
  0445    5050              93  16.0C  7.7   180                             1.48                        4AF   --
                                                                                                                                        S

05/16/79  5050             8.3  63.3   8.3   165    --     --    --    --     --        --    --   --    --   --
  0840    5050              95  17.4C                                                                  3AF   --

05/16/79  5050             8.3  66.2F  8.3   170    --     --    --    --     73        --    --   --    --   --
  1215    5050              98  19.0C  8.4                                   1.46                        2AF   --
                                                                                                                                        S

05/16/79  5050             9.1  66.0F  8.3   170    --     --    --    --     --        --    --   --    --   --
  1430    5050    250E     107  18.9C                                                                        --

05/24/79  5050             9.1  67.1F  7.7   169    10    6.0    13   2.5     74       2.0   4.0   .4   .00   --    119      50    0.8      E
  1445    5050   1500E     108  19.5C  8.1   162   .50    .49   .57   .06   1.48       .04   .11  .01   0AF   --     82       0    0.9      T
                                                    31     30    35     4     90         2     7    1
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MINERAL ANALYSES OF SURFACE WATER

A1 1220.00 PIT R A HY 299 A23B1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE								MILLIGRAMS PER LITER					
06/26/79 1315	5050 5050		9.1 109	68.0F 20.0C	8.6	170 172	--	--	--	--	--	--	1.0 .03	--	-- 1AF	-- --				S
06/26/79 1715	5050 5050		8.8 106	68.0F 20.0C	8.9 8.2	165 166	--	--	--	--	77 1.54	--	.9 .03	--	-- 1AF	-- --				S
06/26/79 2135	5050 5050		8.2 96	65.3F 18.5C	8.8	165 169	--	--	--	--	--	--	.9 .03	--	-- 1AF	-- --				S
06/27/79 0130	5050 5050		8.0 91	63.5F 17.5C	8.6	165 167	--	--	--	--	--	--	.8 .02	--	-- 1AF	-- --				
06/27/79 0510	5050 5050		8.0 89	60.8F 16.0C	8.6 8.0	175 174	--	--	--	--	79 1.58	--	.9 .03	--	-- 1AF	-- --				S
06/27/79 1000	5050 5050		8.8 105	67.1 19.5C	8.7	170 172	--	--	--	--	--	--	.9 .03	--	-- 1AF	-- --				S
07/26/79 1515	5050 5050			77.9F 25.5C		163	--	--	--	--	--	--	--	--	--	-- --				
07/26/79 1530	5050 5050	750E	8.4 103	69.6F 20.9C	8.8 8.5	160 161	10 .50 29	7.0 .58 34	13 .57 33	2.4 .06 4	75 1.50	--	--	--	.10 1AF	-- --		54 0	0.8 0.9	S
08/16/79 0835	5050 5050		9.2 104	62.6F 17.0C	8.6	160 168	--	--	--	--	--	--	--	--	-- 0AF	-- --				
08/16/79 1110	5050 5050		9.5 110	64.4F 18.0C	8.7	165 173	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/16/79 1410	5050 5050		9.5 112	66.2F 19.0C	8.8	160 173	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/16/79 1740	5050 5050		9.0 106	65.1F 18.4C	8.9 8.0	165 168	--	--	--	--	64 1.28	--	1.1 .03	--	-- 1AF	-- --				S

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                                            MINERAL ANALYSES OF SURFACE WATER

 DATE    SAMPLER  G.H.   DO    TEMP    FIELD                               MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME     .LAB    Q      SAT          LABORATORY  MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                DEPTH                 .PH    EC                            PERCENT REACTANCE VALUE    B     F     TDS    TH    SAR    REM
                                                  CA     MG     NA    K    CACO3      SO4   CL   NO3  TURB SIO2   SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              A1  1220.00          PIT R A HY 299                                  A23B1 CONTINUED

08/16/79  5050            8.3  62.6F  8.8   165   --     --     --    --    --        --    --   --    --   --
  2025    5050             95  17.0C        170                                                       1AF  --

08/16/79  5050            8.5  60.6F  8.6   170   --     --     --    --    --        --    --   --    --   --
  2325    5050             95  15.9C        171                                                       1AF  --

08/17/79  5050            8.1  60.8F  8.3   160   --     --     --    --    --        --    --   --    --   --
  0225    5050             91  16.0C        172                                                       1AF  --

08/17/79  5050            8.2  60.4   8.1   160   --     --     --    --    75        --   1.0   --    --   --
  0515    5050             92  15.8C        174                               1.50            .03        0AF  --
                                                                                                                                    S

08/17/79  5050            9.0  63.1   8.1   165   --     --     14    --    75        --   5.0   --   .10   --                 52
  0935    5050            102  17.3C  8.0   171                .61          1.50            .14        1AF  --
                                                                37                                                                  S

10/23/79  5050           10.2  53.6   7.8   175   --     --     19    --   100        --   6.0   --   .00   --                 78
  1015    5050            104  12.0C  7.7   175                .83          2.00            .17        2AF  --
                                                                35                                                                  S

10/23/79  5050           10.3         8.1   180   --     --     --    --    --        --    --   --    --   --
  1315    5050            102               178                                                       2AF  --

10/23/79  5050            9.8  52.5F  7.7   195   --     --     --    --    --        --    --   --    --   --
  1615    5050             98  11.4C        176                                                       2AF  --
                                                                                                                                    S

10/23/79  5050            9.5  52.3   7.9   195   --     --     --    --    --        --    --   --    --   --
  1950    5050             95  11.3C        178                                                       2AF  --
                                                                                                                                    S

10/24/79  5050            9.5  52.2   7.9   195   --     --     --    --    --        --    --   --    --   --
  0500    5050             95  11.2C        178                                                       4AF  --
                                                                                                                                    S

10/24/79  5050            9.7  52.0   7.7   195   --     --     --    --    82        --    --   --    --   --
  0810    5050             96  11.1C  7.8   176                             1.64                          2AF  --
                                                                                                                                    S

12/06/79  5050           10.8  45.9F  8.3         11    7.0     14   2.7    --        --    --   --   .10   --                 56    0.8
  1315    5050             99   7.7C        176  .55    .58    .61   .07                                    --
                                                  30     32     34     4                                                            S
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MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CA	MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
	A1	1220.00		PIT R A HY 299								A23B1 CONTINUED								
01/18/80	5050		11.4	40.1F	7.4	120	7.0	4.0	10	2.5	45	--	1.0	--	.10	--		34	0.7	
1120	5050		96	4.5C	7.7	115	.35	.33	.44	.06	.90		.03		88A	--		0	0.6	
							30	28	37	5										S
	A1	1225.00		PIT R AB PIT 1 PH								A23B1								
07/26/77	5050		10.0	69.0F	8.6	189	--	--	--	--	--	--	--	--	--	--				
1045	5050		122	20.5C	8.4										1AF	--				
																				S
07/26/77	5050			70.0F	8.3	191	--	--	--	--	90	--	--	--	--	--				
1357	5050			21.1C	8.4						1.80				1AF	--				
																				S
07/26/77	5050			67.0F	8.3	191	--	--	--	--	--	--	--	--	--	--				
1703	5050			19.4C	8.4										1AF	--				
																				S
07/26/77	5050		8.3	64.0F	7.5	197	--	--	--	--	--	--	--	--	--	--				
2125	5050		96	17.8C	7.9										1AF	--				
																				S
07/27/77	5050					173	--	--	--	--	--	--	--	--	--	--				
	5050														1AF	--				
																				S
07/27/77	5050			63.0F	7.7	188	--	--	--	--	90	--	--	--	--	--				
0120	5050			17.2C	7.7						1.80				2AF	--				
																				S
07/27/77	5050		8.5	61.0F	8.1	192	--	--	--	--	--	--	--	--	--	--				
0510	5050		95	16.1C	8.0										1AF	--				
																				S
07/27/77	5050		9.1	66.0F	8.4	185	--	--	--	--	--	--	--	--	--	--				
0940	5050		107	18.9C	8.4										1AF	--				
																				S
07/27/77	5050		8.6	69.1F	8.6	192	11	7.3	20	3.9	87	5.1	6.0	1.6	.10	--	148	58	1.1	E
1400	5050	20E	106	20.6C	7.9	208	.55	.60	.87	.10	1.74	.11	.17	.03	1AF	--	107	0	1.4	T
							26	28	41	5	85	5	8	1						
07/27/77	5050		8.3	68.0F	8.6	210	--	--	--	--	--	--	--	--	--	--				
1745	5050		100	20.0C	7.6										2AF	--				

MINERAL ANALYSES OF SURFACE WATER

A1 1225.00 PIT R AB PIT 1 PH — A23B1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE				MILLIGRAMS PER LITER					
							CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/27/77 2200	5050 5050		8.2 94	63.0F 17.2C	7.7 7.6	199	--	--	--	--	--	--	--	--	-- 3AF	-- --				
07/28/77 0145	5050 5050		8.3 95	63.0F 17.2C	7.6 7.5	192	--	--	--	--	83 1.66	--	--	--	-- 2AF	-- --				
07/28/77 0715	5050 5050		8.5		8.6 7.8	195	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/25/77 0515	5050 5050		8.3 94	62.0F 16.7C	7.6 7.7	187	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/25/77 0915	5050 5050		8.3 94	62.0F 16.7C	8.0 7.8	184	--	--	--	--	--	--	--	--	-- 2AF	-- --				
08/25/77 1315	5050 5050		8.3 94	62.0F 16.7C	8.2 7.7	184	--	--	--	--	84 1.68	--	--	--	-- 1AF	-- --				
08/25/77 1715	5050 5050		7.6 87	63.0F 17.2C	8.0 7.7	188	--	--	--	--	--	--	--	--	-- 2AF	-- --				
08/25/77 2115	5050 5050		8.2 94	63.0F 17.2C	7.4 7.6	198	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/26/77 0115	5050 5050		8.4 95	62.0F 16.7C	7.5 7.7	196	--	--	--	--	--	--	--	--	-- 2AF	-- --				
08/26/77 0630	5050 5050		8.5 96	62.0F 16.7C	8.4 7.5	202	--	--	--	--	--	--	--	--	-- 1AF	-- --				
09/29/77 1345	5050 5050		8.6 96	61.0F 16.1C	7.4	182	--	--	--	--	81 1.62	--	--	--	-- 1AF	-- --				
10/05/77 0700	5050 5050			55.0F 12.8C	7.9		--	--	--	--	--	--	--	--	--	-- --				

MINERAL ANALYSES OF SURFACE WATER

MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE — MILLIGRAMS PER LITER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
A1 1225.00				PIT R AB PIT 1 PH								A23B1 CONTINUED								
05/23/78	5050			63.0F	8.1	190	--	--	15	--	83	--	4.7	--	.00	--		64		
	5050			17.2C	8.2				.65		1.66		.13			--				
									34											S
06/29/78	5050		8.2	60.8F	7.8	187	--	--	--	--	--	--	--	--	--	--				
0615	5050		91	16.0C											1AF	--				
06/29/78	5050		9.0	67.1F	8.2	185	--	--	18	--	87	--	4.1	--	.10	--		57		
1030	5050		107	19.5C	8.1				.78		1.74		.12		1AF	--				
									41											S
06/29/78	5050		9.3	68.0F	8.4	177	--	--	--	--	--	--	--	--	--	--				
1405	5050		112	20.0C											1AF	--				
06/29/78	5050		9.4	66.0F	8.4	188	--	--	--	--	--	--	--	--	--	--				
1800	5050		111	18.9C											1AF	--				
06/29/78	5050		8.3	61.0F	7.2	167	--	--	--	--	--	--	--	--	--	--				
2245	5050		93	16.1C											1AF	--				
06/30/78	5050		8.3	59.0F	7.6	179	--	--	--	--	--	--	--	--	--	--				
0250	5050		90	15.0C											1AF	--				
08/03/78	5050		8.4	63.0F	7.8	189	--	--	--	--	--	--	--	--	--	--				
0605	5050		96	17.2C											1AF	--				
08/03/78	5050		8.6	69.8F	8.3	192	--	--	18	--	91	--	3.8	--	.00	--		57		
1025	5050		106	21.0C	8.0				.78		1.82		.11		1AF	--				
									41											S
08/03/78	5050		8.6	74.0F	8.4	196	--	--	--	--	--	--	--	--	--	--				
1430	5050		110	23.3C											1AF	--				
08/03/78	5050		8.3	71.0F	8.2	178	--	--	--	--	--	--	--	--	--	--				
1815	5050		103	21.6C											1AF	--				
08/03/78	5050		7.8	66.0F	8.1	177	--	--	--	--	--	--	--	--	--	--				
2300	5050		92	18.9C											1AF	--				

MINERAL ANALYSES OF SURFACE WATER

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 DATE    SAMPLER  G.H.    DO     TEMP    FIELD                                     MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME     LAB      Q      SAT          LABORATORY   MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                 DEPTH                  PH    EC                             PERCENT REACTANCE VALUE    B      F     TDS     TH    SAR     REM
                                                  CA     MG     NA     K     CACO3      SO4   CL   NO3  TURB  SIO2   SUM     NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

           A1  1225.00          PIT R AB PIT 1 PH                             A23B1 CONTINUED

08/04/78  5050            8.4  63.0F  7.9   175   --     --     --     --     --         --    --   --    --    --
 0250     5050             96  17.2C                                                                    1AF   --

05/15/79  5050            8.2  66.9F  8.2   196   --     --     --     --     --         --    --   --    --    --
 1535     5050             98  19.4C                                                                    8AF   --

05/15/79  5050            9.2  64.9F  8.1   197   --     --     --     --     --         --    --   --    --    --
 1930     5050            107  18.3C                                                                    9AF   --

05/16/79  5050            8.4  62.6   8.1   205   --     --     --     --     --         --    --   --    --    --
 0005     5050             95  17.0C        197                                                         6AF   --

05/16/79  5050            8.5  61.7F  8.5   205   --     --     --     --     83         --    --   --    --    --
 0415     5050             96  16.5C  7.7   199                             1.66                        9AF   --                              S

05/16/79  5050            8.4  63.5   7.9   197   --     --     --     --     --         --    --   --    --    --
 0800     5050             96  17.5C                                                                    8AF   --                              S

05/16/79  5050            8.2  69.1   8.1   200   --     --     --     --     84         --    --   --    --    --
 1150     5050            100  20.6C  7.6                                   1.68                        5AF   --                              S

05/16/79  5050                 69.0   8.1   200   --     --     --     --     --         --    --   --    --    --
 1400     5050    200E         20.5C                                                                          --                              S

06/26/79  5050            8.8  68.0   8.8   200   --     --     --     --     --         --    .9   --    --    --
 1245     5050            106  20.0C        196                                              .03        1AF   --                              S

06/26/79  5050            8.5  68.0   8.9   200   --     --     --     --     83         --    .9   --    --    --
 1645     5050            103  20.0C  8.1   189                             1.66             .03        1AF   --                              S

06/26/79  5050            8.2  63.5F  8.3   200   --     --     --     --     --         --   1.0   --    --    --
 2105     5050             94  17.5C        201                                              .03        1AF   --                              S

06/27/79  5050            8.3  60.8F  8.1   200   --     --     --     --     --         --    .8   --    --    --
 0100     5050             92  16.0C        203                                              .02        1AF   --                              S
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MINERAL ANALYSES OF SURFACE WATER

A1 1225.00 PIT R AB PIT 1 PH

A23B1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE								MILLIGRAMS PER LITER					
06/27/79	5050		8.6	58.1F	8.6	205	--	--	--	--	87	--	1.2	--	--	--				
0445	5050		93	14.5C	7.5	201					1.74		.03		1AF	--				S
06/27/79	5050		8.9	65.3	8.6	205	--	--	--	--	--	--	.8	--	--	--				
0920	5050	15E	104	18.5C		201							.02		1AF	--				S
07/26/79	5050			74.3		190	--	--	--	--	--	--	--	--	--	--				
1430	5050	20E		23.5C												--				S
08/16/79	5050		9.0	60.8F	8.6	195	--	--	--	--	--	--	--	--	--	--				
0800	5050		100	16.0C		202									1AF	--				S
08/16/79	5050		8.9	68.0	8.6	205	--	--	--	--	--	--	--	--	--	--				
1050	5050		107	20.0C		199									1AF	--				
08/16/79	5050		8.6	68.9F	8.8	195	--	--	--	--	--	--	--	--	--	--				
1350	5050		105	20.5C		198									1AF	--				S
08/16/79	5050		8.6	65.5F	9.1	195	--	--	--	--	71	--	1.2	--	--	--				
1715	5050		102	18.6C	8.5	198					1.42		.03		1AF	--				S
08/16/79	5050		8.4	61.7	8.6	200	--	--	--	--	--	--	--	--	--	--				
2005	5050		95	16.5C		199									1AF	--				
08/16/79	5050		8.4	60.1F	8.6	190	--	--	--	--	--	--	--	--	--	--				
2300	5050		94	15.6C		201									0AF	--				S
08/17/79	5050		8.2	60.1F	8.1	190	--	--	--	--	--	--	--	--	--	--				
0155	5050		91	15.6C		199									0AF	--				
08/17/79	5050		8.2	59.5F	8.1	190	--	--	--	--	71	--	1.2	--	--	--				
0445	5050		91	15.3C	7.8	199					1.42		.03		1AF	--				S
08/17/79	5050		9.2	61.9F	8.1	200	--	--	19	--	85	--	6.0	--	.16	--		57		
0840	5050		104	16.6C	7.7	202			.83		1.70		.17		1AF	--				S
									42											

MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
	A1 1225.00				PIT R AB PIT 1 PH							A23B1 CONTINUED								
10/23/79 0955	5050 5050		9.0 93	54.5F 12.5C	8.1 7.5	225 223	--	--	13 .57 34	--	75 1.50	--	5.0 .14	--	.00 6AF	-- --		56		S
10/23/79 1250	5050 5050		9.5 99	55.0F 12.8C	8.1	240 231	--	--	--	--	--	--	--	--	-- 8AF	-- --				S
10/23/79 1545	5050 5050		9.5 100	55.9F 13.3C	8.5	255 227	--	--	--	--	--	--	--	--	-- 7AF	-- --				S
10/23/79 1930	5050 5050		9.5 99	55.0F 12.8C	8.5	260 240	--	--	--	--	--	--	--	--	-- 4AF	-- --				S
10/24/79 0445	5050 5050		9.4 96	54.1F 12.3C	8.3	260 237	--	--	--	--	--	--	--	--	-- 10AF	-- --				S
10/24/79 0750	5050 5050		9.2 95	55.0F 12.8C	7.9 7.9	255 236	--	--	--	--	106 2.12	--	--	--	-- 5AF	-- --				S
01/18/80 1050	5050 5050		11.9 100	39.7F 4.3C	7.5 7.7	120 117	8.0 .40 33	3.0 .25 21	11 .48 40	2.9 .07 6	46 .92	--	2.0 .06	--	.10 120A	-- --		32 0	0.8 0.6	S
	A1 1230.00				PIT R A FALL R MILLS							A23B1								
03/17/52 0940	5050 5000				7.8	223	16 .80 35	7.3 .60 27	18 .78 35	3.2 .08 4	85 1.70 74	18 .37 16	7.0 .20 9	1.2 .02 1	.00	.2 28.0	150	70 0	0.9 1.2	
11/03/52 1100	5050 5000	190			7.6	255	18 .90 33	8.7 .72 26	23 1.00 36	4.5 .12 4	115 2.30 86	9.3 .19 7	5.2 .15 6	1.3 .02 1	.04	.1 32.0	171	81 0	1.1 1.7	
06/24/58 1400	5050 5000	1.62		74.0F 23.3C	7.6	217	16 .80 35	7.1 .58 25	19 .83 36	3.9 .10 4	100 2.00 88	8.6 .18 8	3.0 .08 4	.8 .01	.10	.0 31.0	149	69 0	1.0 1.4	

MINERAL ANALYSES OF SURFACE WATER

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DATE    SAMPLER  G.H.    DO     TEMP   FIELD                                  MILLIGRAMS PER LITER          MILLIGRAMS PER LITER
TIME     LAB      Q     SAT           LABORATORY   MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                DEPTH                   PH    EC                             PERCENT REACTANCE VALUE    B      F    TDS    TH    SAR     REM
                                                   CA    MG    NA    K      CACO3      SO4   CL   NO3  TURB  SIO2   SUM   NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

           A1  1231.00       PIT R A DOWNTOWN FALL R MILLS               A23C1

09/27/62  5050                                     14   9.0    19  3.0    108        .0   5.0  1.2   .10    .1    149    72   1.0
  0345    5000                     8.1   217     .70   .74   .83  .08    2.16      .00   .14  .02   15E  32.0    148     0   1.4
                                                  30    31    35    3      93              6    1

           A1  1270.00.      PIT R A PITTVILLE                           A23C1

09/27/62  5050                                    --    --    --    --    101        --    --   --    --    --    158                 E
  0935    5000                     7.9   207                             2.02                          2E    --

06/05/63  5050    4.05    8.5  64.0F   8.1        --    --    --    --     --        --    --   --    --    --
  1330                     99  17.8C                                                                        --

08/08/63  5050           11.3  71.0F   8.3        --    --    --    --     --        --    --   --    --    --
  1030             30E    143  21.6C                                                                        --

09/12/63  5050           12.3  64.0F   8.3        --    --    --    --     --        --    --   --    --    --
  1330             18E    144  17.8C                                                                        --

10/10/63  5050    2.73    9.3  62.0F   8.2        --    --    --    --     --        --    --   --    --    --
  1130                    106  16.7C                                                                        --

11/06/63  5050    3.25   10.0  49.0F   7.9        --    --    --    --     --        --    --   --    --    --
  1035                     97   9.4C                                                                        --

12/04/63  5050    3.19   11.3  40.0F   8.0        --    --    --    --     --        --    --   --    --    --
  1645                     97   4.4C                                                                        --

06/03/77  5050           10.7  74.3F   8.5   345  --    --    --    --     --        --    --   --    --    --
  1340    5050            140  23.5C         337                                                      1AF    --

07/26/77  5050           10.1  70.0F   8.6   310  --    --    --    --     --        --    --   --    --    --
  1000    5050            126  21.1C   7.9   286                                                      1AF    --                     S

07/26/77  5050           12.0  79.0    8.3   290  --    --    --    --    132        --    --   --    --    --
  1300    5050            164  26.1C   8.7   258                         2.64                         1AF    --                     S
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MINERAL ANALYSES OF SURFACE WATER

A1 1270.00 PIT R A PITTVILLE A23C1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/26/77 1625	5050 5050		11.8 162	79.0F 26.1C	8.4 8.9	280 252	--	--	--	--	--	--	--	--	-- 1AF	-- --				S
07/26/77 2035	5050 5050		7.9 102	73.0F 22.8C	7.9 8.7	280 256	--	--	--	--	--	--	--	--	-- 2AF	-- --				S
07/27/77 0125	5050 5050		4.5 56	69.1F 20.6C	8.0 7.5	285 260	--	--	--	--	131 2.62	--	--	--	-- 2AF	-- --				S
07/27/77 0415	5050 5050		3.7 43	64.0 17.8C	7.7 7.9	290 272	--	--	--	--	--	--	--	--	-- 2AF	-- --				S
07/27/77 0855	5050 5050		8.4 105	70.0 21.1C	8.3 8.2	295 274	--	--	--	--	--	--	--	--	-- 1AF	-- --				S
07/27/77 1315	5050 5050	15E.	12.2 169	80.1 26.7C	9.8 8.2	275 290	18 .90 30	11 .90 30	24 1.04 35	4.8 .12 4	130 2.60 87	10 .21 7	5.5 .16 5	2.0 .03 1	.10 2AF	-- --	195 153	92 0	1.1 1.7	T
07/27/77 1710	5050 5050		11.6 159	79.0F 26.1C	8.9 8.7	300 265	--	--	--	--	--	--	--	--	-- 2AF	-- --				
07/27/77 2110	5050 5050		6.6 85	73.0F 22.8C	8.1 7.6	285 276	--	--	--	--	--	--	--	--	-- 5AF	-- --				S
07/28/77 0105	5050 5050		3.9 48	69.1 20.6C	7.7 8.2	266	--	--	--	--	126 2.52	--	--	--	-- 2AF	-- --				S
07/28/77 0600	5050 5050		5.0 58	64.0 17.8C	7.5 7.4	289	--	--	--	--	--	--	--	--	-- 2AF	-- --				S
08/25/77 0440	5050 5050		3.9 48	68.0F 20.0C	7.6 7.2	248	--	--	--	--	--	--	--	--	-- 1AF	-- --				S
08/25/77 0840	5050 5050		7.6 89	64.0F 17.8C	7.6 7.6	235	--	--	--	--	123 2.46	--	--	--	-- 1AF	-- --				S

MINERAL ANALYSES OF SURFACE WATER

A1 1270.00 PIT R A PITTVILLE A23C1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE				MILLIGRAMS PER LITER					
08/25/77 1230	5050 5050			63.0F 17.2C	8.4 7.6	241	--	--	--	--	--	--	--	--	-- 1AF	-- --				S
08/25/77 1630	5050 5050		8.4 98	64.0F 17.8C	7.8 7.4	235	--	--	--	--	--	--	--	--	-- 2AF	-- --				S
08/25/77 2030	5050 5050		6.2 72	63.0F 17.2C	7.3 7.5	256	--	--	--	--	--	--	--	--	-- 2AF	-- --				S
08/26/77 0030	5050 5050		5.4 61	61.0F 16.1C	7.2 7.6	253	--	--	--	--	--	--	--	--	-- 1AF	-- --				S
08/26/77 0530	5050 5050		6.9 76	59.0F 15.0C	7.4 7.7	271	--	--	--	--	--	--	--	--	-- 1AF	-- --				S
09/29/77 1230	5050 5050	20E	8.3 93	60.1F 15.6C	7.2	240	--	--	--	--	105 2.10	--	--	--	-- 2AF	-- --				S
12/20/77	5050 5050					180	--	--	--	--	--	--	--	--	-- 70AF	-- --				S
05/23/78 0930	5050 5050			63.0F 17.2C	8.0 8.1	179 180	--	--	14 .61 32	--	80 1.60	--	3.8 .11	--	.10	-- --		64		S
06/29/78 0525	5050 5050		6.0 69	63.0F 17.2C	7.4	228	--	--	--	--	--	--	--	--	-- 2AF	-- --				
06/29/78 0940	5050 5050		9.9 121	68.0F 20.0C	8.0 8.2	227	--	--	19 .83 33	--	118 2.36	--	1.1 .03	--	.00 2AF	-- --		86		S
06/29/78 1400	5050 5050		13.3 171	73.0F 22.8C	8.3	218	--	--	--	--	--	--	--	--	-- 2AF	-- --				
06/29/78 1805	5050 5050		11.9 153	73.0F 22.8C	8.4	214	--	--	--	--	--	--	--	--	-- 2AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 1270.00 PIT R A PITTVILLE A23C1 CONTINUED

							MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE				MILLIGRAMS PER LITER					
DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
06/29/78 2145	5050 5050		8.3 103	69.0F 20.5C	8.1	211	--	--	--	--	--	--	--	--	-- 2AF	-- --				
06/30/78 0145	5050 5050		5.8 69	65.0F 18.3C	8.1	222	--	--	--	--	--	--	--	--	-- 2AF	-- --				
08/03/78 0530	5050 5050		1.9 23	68.0F 20.0C	7.5	239	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/03/78 0930	5050 5050		7.8 93	66.0 18.9C	7.9 8.2	234	--	--	18 .78 32	--	118 2.36	--	2.2 .06	--	.00 1AF	-- --		83		S
08/03/78 1350	5050 5050		11.5 161	81.0 27.2C	7.4	245	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/03/78 1715	5050 5050		10.9 152	81.0F 27.2C	8.2	220	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/03/78 2145	5050 5050		7.3 98	77.0F 25.0C	8.7	210	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/04/78 0145	5050 5050		3.9 51	74.0F 23.3C	8.7	207	--	--	--	--	--	--	--	--	-- 1AF	-- --				
10/19/78 1300	5050			64.0F 17.8C		290	--	--	--	--	--	--	--	--	--	-- --				
01/17/79	5050 5050					170	--	--	--	--	--	--	--	--	--	-- --				
03/03/79	5050 5050					234	--	--	--	--	--	--	--	--	--	-- --				
05/15/79 1455	5050 5050		8.3 104	70.0F 21.1C	8.1	208	--	--	--	--	--	--	--	--	-- 6AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 1270.00 PIT R A PITTVILLE A2 3C1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE				MILLIGRAMS PER LITER					
05/15/79 1850	5050 5050		8.8 108	68.0F 20.0C	8.1	208	--	--	--	--	--	--	--	--	-- 7AF	-- --				
05/15/79 2305	5050 5050		7.7 93	66.9F 19.4C	8.1	225 210	--	--	--	--	--	--	--	--	-- 8AF	-- --				
05/16/79 0320	5050 5050		7.7 92	66.2F 19.0C	8.1 7.8	220 210	--	--	--	--	91 1.82	--	--	--	-- 8AF	-- --				S
05/16/79 0700	5050 5050		8.0 96	66.7 19.3C	8.1	226	--	--	--	--	--	--	--	--	-- 4AF	-- --				S
05/16/79 1110	5050 5050		8.3 104	70.3 21.3C	8.1 7.6	216	--	--	--	--	93 1.86	--	--	--	-- 4AF	-- --				S
05/16/79 1300	5050 5050	200E		70.0 21.1C	8.1	215	--	--	--	--	--	--	--	--	--	-- --				S
06/26/79 1200	5050 5050		11.4 145	71.6F 22.0C	8.2	220 216	--	--	--	--	--	--	.7 .02	--	-- 1AF	-- --				S
06/26/79 1600	5050 5050		13.0 171	75.2F 24.0C	9.0 8.6	210 217	--	--	--	--	102 2.04	--	.9 .03	--	-- 1AF	-- --				S
06/26/79 2010	5050 5050		10.0 127	71.6F 22.0C	9.0	235 218	--	--	--	--	--	--	.8 .02	--	-- 1AF	-- --				
06/27/79 0005	5050 5050		8.4 104	68.9F 20.5C	8.9	215 214	--	--	--	--	--	--	.6 .02	--	-- 2AF	-- --				S
06/27/79 0400	5050 5050		6.0 72	66.2F 19.0C	8.8 8.4	210 213	--	--	--	--	98 1.96	--	.7 .02	--	-- 1AF	-- --				S
06/27/79 0800	5050 5050		6.7 81	67.1F 19.5C	8.6	200 214	--	--	--	--	--	--	.8 .02	--	-- 1AF	-- --				S

MINERAL ANALYSES OF SURFACE WATER

A1 1270.00 PIT R A PITTVILLE A23C1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MG	NA	K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/24/79 1330	5050 5050			77.9F 25.5C		235	--	--	--	--	--	--	--	--	--	-- --				
08/15/79 1200	5050 5050					214	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/16/79 0735.	5050 5050		4.7 54	62.6F 17.0C	8.6	215 218	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/16/79 1000	5050 5050		8.6 105	68.0F 20.0C	8.6	215 218	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/16/79 1300	5050 5050		12.3 162	75.2F 24.0C	8.8	205 214	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/16/79 1630	5050 5050		13.4 175	74.3F 23.5C	9.1 9.1	210 208	--	--	--	--	86 1.72	--	.8 .02	--	-- 1AF	-- --				S
08/16/79 1905	5050 5050		11.6 147	71.1F 21.7C	9.0	205 207	--	--	--	--	--	--	--	--	-- 1AF	-- --				S
08/16/79 2200	5050 5050		8.5 103	67.1F 19.5C	9.0	200 206	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/17/79 0105	5050 5050		5.0 61	63.7F 17.6C	8.6	200 214	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/17/79 0400	5050 5050		3.8 45	61.5F 16.4C	8.0 7.8	205 223	--	--	--	--	88 1.76	--	.9 .03	--	-- 1AF	-- --				S
08/17/79 0710	5050 5050		4.8 61	67.6F 19.8C	8.4 7.9	210 236	--	--	17 .74 31	--	108 2.16	--	4.0 .11	--	.00 1AF	-- --		82		S
09/17/79	5050 5050					284	--	--	--	--	--	--	--	--	-- 1AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CA	MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
	A1	1270.00		PIT R A PITTVILLE								A23C1 CONTINUED								
10/23/79	5050		9.7	53.6F	8.1	305	--	--	24	--	127	--	6.0	--	.10	--		94		
0900	5050		100	12.0C	7.9	300			1.04		2.54		.17		10AF	--				
									36											S
10/23/79	5050		9.3	54.0F	7.9	305	--	--	--	--	--	--	--	--	--	--				
1200	5050		97	12.2C		300									9AF	--				
																				S
10/23/79	5050		9.3	55.4F	7.9	320	--	--	--	--	--	--	--	--	--	--				
1500	5050		98	13.0C		301									9AF	--				
																				S
10/23/79	5050		9.2	53.8F	8.0	325	--	--	--	--	--	--	--	--	--	--				
1830	5050		95	12.1C		303									10AF	--				
																				S
10/24/79	5050		9.9	52.7F	8.1	320	--	--	--	--	--	--	--	--	--	--				
0400	5050		101	11.5C		300									8AF	--				
																				S
10/24/79	5050		9.3	50.4F	7.8	330	--	--	--	--	126	--	--	--	--	--				
0700	5050		92	10.2C	7.7	298					2.52				7AF	--				
																				S
01/18/80	5050	11.00	11.8	35.6F	7.3	125	8.0	3.0	10	2.8	45	--	2.0	--	.10	--		32	0.8	
0950	5050		95	2.0C	7.7	119	.40	.25	.44	.07	.90		.06		120A	--		0	0.6	
							34	22	38	6										S
	A1	1342.00		BEAVER C NR PITTVILLE								A23C1								
06/25/58	5050			73.0F			13	8.1	7.2	2.4	80	1.9	1.5	.9	.00	.3		66	0.4	
1130	5000	5E		22.8C	7.7	155	.65	.67	.31	.06	1.60	.04	.04	.01		34.0	117	0	0.5	
							38	40	18	4	95	2	2	1						
	A1	1351.00		HORSE C BL DIXIE RES								A23C4								
06/03/77	5050			70.0F	9.0	302	--	--	--	--	--	--	--	--	--	--				
1200	5050			21.1C											0AF	--				
05/23/78	5050			58.0F	8.4	240	--	--	--	--	--	--	--	--	--	--				
1030				14.4												--				

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                                        MINERAL ANALYSES OF SURFACE WATER

 DATE     SAMPLER  G.H.    DO     TEMP    FIELD                                    MILLIGRAMS PER LITER          MILLIGRAMS PER LITER
 TIME      LAB     Q       SAT           LABORATORY   MINERAL CONSTITUENTS IN      MILLIEQUIVALENTS PER LITER
                  DEPTH                    PH     EC                               PERCENT REACTANCE VALUE        B     F      TDS     TH     SAR     REM
                                                      CA      MG      NA     K     CACO3      SO4    CL    NO3   TURB  SIO2    SUM     NCH    ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              A1  1365.00          MCARTHUR CA A TULE R                            A23C1

06/25/58  5050                    64.0F                10     6.1     15    3.1     76       1.9    5.0    .3    .10    .1             50     0.9
 1000     5000      60E           17.8C   8.2    169  .50     .50    .65    .08    1.52       .04    .14   .00          35.0    122      0     1.0
                                                       29      29     38      5     89         2      8

              A1  1400.00          PIT R NR BIEBER                                 A23D1

09/19/57  5050     2.62           57.0F                21      10     27    6.8    139        15    3.3    .3    .07    .8             94     1.2
 1100     5000                    13.9C   7.0    303 1.05     .82   1.17    .17   2.78       .31    .09   .00    5E   39.0    206      0     2.0
                                                       33      26     36      5     87        10      3

06/25/58  5050     3.69           79.0F                18     6.1     19    4.2    103       5.8    4.0    .9    .00    .3             70     1.0
 1400     5000                    26.1C   8.0    227  .90     .50    .83    .11   2.06       .12    .11   .01          28.0    148      0     1.4
                                                       38      21     35      5     90         5      5

10/15/58  5050     3.06    9.4    56.0F   7.9          19     7.4     22    5.1    112       7.7    6.0    .7    .20    .3             78     1.1
 1135     5000      125    103    13.3C   7.3    253  .95     .61    .96    .13   2.24       .16    .17   .01          32.0    167      0     1.6
                                                       36      23     36      5     87         6      7

11/12/58  5050     3.13   11.2    42.0F   7.8          19     7.9     26    4.8    116        12    6.8    .5    .10    .2             80     1.3
 1105     5000      140    102     5.6C   7.7    266  .95     .65   1.13    .12   2.32       .25    .19   .01          29.0    176      0     1.9
                                                       33      23     40      4     84         9      7

05/07/59  5050     2.35    8.0    56.0F   7.7          22     9.5     28    4.6    134        13    8.0    .7    .30    .2             94     1.3
 0900     5000       30     88    13.3C   7.5    295 1.10     .78   1.22    .12   2.68       .27    .23   .01  100E   26.0    192      0     2.0
                                                       34      24     38      4     84         8      7

06/04/59  5050     2.08    7.3    69.0F   7.8          23      11     37    6.6    148        27    8.0   1.3    .20    .2            102     1.6
 1450     5000       11     93    20.5C   7.9    336 1.15     .90   1.61    .17   2.96       .56    .23   .02          32.0    235      0     2.7
                                                       30      23     42      4     79        15      6     1

07/16/59  5050     2.06    9.1    76.0F   8.3          28     9.7     41    6.3    173        13    9.0    .8    .00    .2            110     1.7
 1125     5000       10    125    24.4C   8.8    359 1.40     .80   1.78    .16   3.46       .27    .25   .01          30.0    242      0     3.0
                                                       34      19     43      4     87         7      6

08/12/59  5050     1.58   10.3    71.0F   8.3          16     4.9     55    7.6    143        20     14    .1    .20    .4             60     3.1
 1310     5000       .5    134    21.6C   9.1    339  .80     .40   2.39    .19   2.86       .42    .39   .00          25.0    229      0     4.5
                                                       21      11     63      5     78        11     11

09/09/59  5050     1.61   14.6    77.0F   8.2          14     5.6     68    8.8    162        15     23    .0    .30    .3             58     3.9
 1445     5000       .5    202    25.0C   9.5    383  .70     .46   2.96    .23   3.24       .31    .65   .00   13E   10.0    242      0     5.7
                                                       16      11     68      5     77         7     15

10/14/59  5050     1.62   10.6    64.0F   8.0          24      12     38    6.5    142        40    7.0    .6    .20    .2            108     1.6
 1330     5000       .5    128    17.8C   7.9    334 1.20     .99   1.65    .17   2.84       .83    .20   .01          33.0    246      0     2.7
                                                       30      25     41      4     73        21      5
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MINERAL ANALYSES OF SURFACE WATER

MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE — MILLIGRAMS PER LITER

A1 1400.00 PIT R NR BIEBER — A23D1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
11/12/59	5050	2.26	10.6	38.0F	7.9		23	11	30	5.2	139	19	12	.3	.20	.5		104	1.3	
1045	5000	22	91	3.3C	8.2	312	1.15	.90	1.31	.13	2.78	.40	.34	.00		26.0	210	0	2.1	
							33	26	38	4	79	11	10							
12/09/59	5050	2.76	12.0	33.0F	7.7		23	8.9	33	7.3	141	16	14	.3	.10	.2		94	1.5	
1415	5000	68	95	0.6C	7.6	335	1.15	.73	1.44	.19	2.82	.33	.39	.00		34.0	221	0	2.4	
							33	21	41	5	80	9	11							
02/10/60	5050	7.30	9.9	36.0F	7.1		--	--	8.3	--	34	--	2.2	--	.10	--		35		
1520	5000	3580	82	2.2C	6.7	104			.36		.68		.06		500E	--				
									34											S
04/13/60	5050	3.75	9.8	57.0F	7.9		--	--	15	--	93	--	5.8	--	.00	--		70		
1135	5000	302	109	13.9C	8.5	204			.65		1.86		.16		30E	--				
									32											S
05/11/60	5050	3.91	7.0	64.0F	7.5		20	8.9	26	6.2	132	11	5.6	.5	.20	.4		86	1.2	
0820	5000	364	84	17.8C	7.8	275	1.00	.73	1.13	.16	2.64	.23	.16	.01	16E	30.0	188	0	1.9	
							33	24	37	5	87	8	5							
06/08/60	5050	2.50	10.4	73.0F	8.1		--	--	32	--	157	--	10	--	.10	--		101		
1155	5000	34	138	22.8C	8.5	314			1.39		3.14		.28		2E	--				
									41											S
07/07/60	5050	2.21	6.2	70.0	7.9		--	--	11	--	179	--	6.0	--	.20	--		177		
0745	5000	15	80	21.1C	7.9	362			.48		3.58		.17		5E	--				
									12											S
08/11/60	5050	1.72	6.4	62.0F	8.1		--	--	44	--	129	--	7.5	--	.20	--		59		
0750	5000	.5	75	16.7C	9.2	277			1.91		2.58		.21		6E	--				
									62											S
09/08/60	5050	1.68	10.7	60.0F	8.1		15	3.3	59	6.5	147	12	14	.7	.10	.4		51	3.6	
0930	5000	.5	123	15.5C	9.6	323	.75	.27	2.57	.17	2.94	.25	.39	.01	6E	16.0	215	0	5.0	
							20	7	68	5	82	7	11							S
10/13/60	5050	2.35	8.3	42.0F	7.7		--	--	28	--	161	--	8.0	--	.30	--		119		
0805	5000	29	76	5.6C	8.2	352			1.22		3.22		.23		10E	--				
									34											S
11/10/60	5050	2.61	9.4	41.0F	7.7		--	--	36	--	130	--	7.8	--	.20	--		91		
0740	5000	49	84	5.0C	7.9	301			1.57		2.60		.22		15E	--				
									46											S
02/16/61	5050	5.28	10.5	38.0F	7.3		--	--	13	--	62	--	.9	--	.10	--		45		
0850	5000	1250	90	3.3C	7.8	145			.57		1.24		.03		130E	--				
									39											S

MINERAL ANALYSES OF SURFACE WATER

A1 1400.00 PIT R NR BIEBER A23D1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CA	MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
03/09/61	5050		10.5	37.0F	7.7		--	--	22	--	107	--	6.5	--	.20	--		79		
0800	5000	178	89	2.8C	7.9	245			.96		2.14		.18		15E	--				
									38											S
04/12/61	5050		9.8	55.0F	7.8		--	--	14	--	93	--	2.8	--	.00	--		74		
1440	5000	59	106	12.8C	8.0	194			.61		1.86		.08		35E	--				
									29											S
11/15/61	5050	2.45	10.1	35.0	7.9		--	--	36	--	162	--	12	--	.20	--		115		
0930	5000	24	83	1.7C	7.8	378			1.57		3.24		.34		25E	--				
									41											S
12/06/61	5050	3.01	11.2	34.0	7.5		--	--	30	--	108	--	9.2	--	.20	--		74		
1100	5000	111	90	1.1C	7.6	262			1.31		2.16		.26		30E	--				
									47											S
01/10/62	5050	2.85	11.5	33.0	7.7		--	--	26	--	112	--	5.8	--	.10	--		75		
0930	5000	26	91	0.6C	7.8	264			1.13		2.24		.16		15E	--				
									43											S
04/10/62	5050	4.55	9.3	55.0F	7.7		--	--	12	--	70	--	2.8	--	.10	--		58		
1200	5000	708	101	12.8C	7.6	152			.52		1.40		.08		90E	--				
									31											S
05/02/62	5050	2.75	9.0	63.0	8.3		17	8.4	21	3.9	99	11	11	.3	.20	.1		77	1.0	
1120	5000	67	107	17.2C	7.8	223	.85	.69	.91	.10	1.98	.23	.31	.00	20E	27.0	159	0	1.5	
							33	27	36	4	79	9	12							
06/14/62	5050	2.20	7.9	60.0F	8.3		--	--	30	--	130	--	7.5	--	.10	--		90		
0900	5000	9.0	91	15.5C	8.3	275			1.31		2.60		.21		3E	--				
									42											S
07/10/62	5050	2.40	7.7	70.0F			--	--	39	--	140	--	8.2	--	.10	--		86		
0915	5000	23	99	21.1C	8.5	306			1.70		2.80		.23		5E	--				
									50											S
08/15/62	5050	1.65	11.3	72.0	8.4		--	--	57	--	131	--	16	--	.00	--		43		
1110	5000	.5	149	22.2C	9.8	307			2.48		2.62		.45		2E	--				
									74											S
11/19/62	5050	3.46	12.2	45.0	8.1		--	--	22	--	112	--	7.5	--	.00	--		78		
1425	5000	224	116	7.2C	8.1	240			.96		2.24		.21		9E	--				
									38											S
01/11/63	5050	3.04	13.0	34.0F	7.6		--	--	21	--	110	--	7.0	--	.00	--		77		
1100	5000	40	105	1.1C	8.0	238			.91		2.20		.20		15E	--				
									37											S

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                                                        MINERAL ANALYSES OF SURFACE WATER

  DATE      SAMPLER  G.H.   DO     TEMP   FIELD                                   MILLIGRAMS PER LITER          MILLIGRAMS PER LITER
  TIME       LAB     Q      SAT           LABORATORY    MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                     DEPTH                  PH     EC                             PERCENT REACTANCE VALUE     B     F     TDS     TH     SAR     REM
                                                         CA     MG     NA     K     CACO3      SO4    CL    NO3  TURB  SIO2    SUM    NCH    ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

             A1  1400.00          PIT R NR BIEBER                                 A23D1 CONTINUED

07/10/63  5050    3.09   8.5  73.0F  8.3           --     --     30    --     162        --    4.6   --    .10   --             106
  1120    5000     127   113  22.8C  8.0    329                1.31               3.24             .13         4E   --
                                                                  38                                                                          S

             A1  1415.00          PIT R NR PUMPKIN CENTER                         A23D1

07/12/77  5050           8.8  76.0F  8.5    422    --     --     --    --      --        --     --   --     --   --
  1315    5050           121  24.4C                                                                        3AF   --

07/12/77  5050           9.3  77.0F  8.4    413    --     --     --    --      --        --     --   --     --   --
  1615    5050           130  25.0C                                                                        4AF   --

07/12/77  5050           8.7  74.0F  8.4    408    --     --     --    --      --        --     --   --     --   --
  2015    5050           117  23.3C                                                                        3AF   --

07/12/77  5050           6.4  70.0F  8.4    417    --     --     --    --      --        --     --   --     --   --
  2359    5050            83  21.1C                                                                        5AF   --

07/13/77  5050           6.6  72.0F  8.4    416    --     --     --    --      --        --     --   --     --   --
  0400    5050            88  22.2C                                                                        5AF   --

07/13/77  5050           6.9  72.0F  8.3    418    --     --     --    --      --        --     --   --     --   --
  0840    5050            91  22.2C                                                                        5AF   --

07/13/77  5050           8.5  75.0F  8.3    424    --     --     --    --      --        --     --   --     --   --
  1145    5050           115  23.9C                                                                        5AF   --

07/13/77  5050                77.0F         424    --     --     --    --      --        --     --   --     --   --
  1605    5050                25.0C                                                                        5AF   --

07/13/77  5050           8.5  74.0F  8.4    411    --     --     --    --     182        --     --   --     --   --
  2130    5050           114  23.3C  8.3                                      3.64                         5AF   --
                                                                                                                                              S

07/14/77  5050           7.0  72.0F  8.4    415    --     --     --    --     184        --     --   --     --   --
  0330    5050            92  22.2C  8.2                                      3.68                         5AF   --
                                                                                                                                              S
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                                    MINERAL ANALYSES OF SURFACE WATER

 DATE     SAMPLER  G.H.    DO     TEMP   FIELD                                          MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME      LAB      Q      SAT           LABORATORY   MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                  DEPTH                   PH    EC                                  PERCENT REACTANCE VALUE         R      F       TDS     TH     SAR     REM
                                                        CA     MG     NA     K      CACO3       SO4     CL    NO3   TURR  SIO2     SUM    NCH    ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

             A1  1415.00          PIT R NR PUMPKIN CENTER                                A23D1 CONTINUED

07/14/77  5050           6.9  71.0F  8.7   422    --     --     --     --      188        --     --    --     --     --
  0830    5050            90  21.6C  8.6                                       3.76                           7AF    --
                                                                                                                                                S

07/14/77  5050           6.9  74.0F  7.7   425    --     --     --     --      --         --     --    --     --     --
  1130    5050     3E     93  23.3C                                                                                  --

             A1  1425.00          PIT R A BIEBER                                         A23D1

12/01/58  5050          12.2  37.0F  7.3           18     7.1     26    4.4     110        9.6    7.6    .8    .20    .2              74    1.3
  1550    5000    189    103   2.8C  7.8   253    .90    .58   1.13    .11    2.20        .20    .21   .01          35.0     175      0    1.9
                                                   33     21     42      4      84          8      8

03/05/59  5050           9.6  46.0F  7.4           13    5.0     14    2.6      66         17    3.5    .2    .00    .2              53    0.8
  1310    5000    540     93   7.8C  7.8   155    .65    .41    .61    .07    1.32        .35    .10   .00          27.0     122      0    0.9
                                                   37     24     35      4      75         20      6

01/06/60  5050          11.8  32.0F  7.3           --     --     30     --     130         --    8.8    --    .20    --              89
  1415    5000            92   0.0C  8.2   297                 1.31           2.60               .25          48E    --
                                                                 42                                                                             S

12/15/60  5050          11.1  33.0F  7.3           --     --     22     --     105         --    5.5    --    .10    --              72
  0915    5000    105     88   0.6C  7.9   231                  .96           2.10               .16          60E    --
                                                                 40                                                                             S

01/12/61  5050          11.7  35.0F  7.3           --     --     22     --     111         --    5.8    --    .10    --              76
  1600    5000    168     96   1.7C  7.7   254                  .96           2.22               .16         300E    --
                                                                 39                                                                             S

05/11/61  5050           7.4  51.0F  7.8           20    9.2     17    4.1     125        3.0    4.0    .9    .10    .2              88    0.8
  0700    5000    8.0     76  10.5C  8.0   258   1.00    .76    .74    .10    2.50        .06    .11   .01    10E  27.0     160      0    1.2
                                                   38     29     28      4      93          2      4

06/15/61  5050           7.2  73.0F  7.9           --     --     33     --     168         --     .9    --    .00    --             108
  0930    5000     47     96  22.8C  8.3   341                 1.44           3.36               .03          25E    --
                                                                 40                                                                             S

07/12/61  5050           7.0  77.0   8.3           --     --     36     --     182         --    6.0    --    .10    --             123
  1710    5000     .5     97  25.0C  8.3   389                 1.57           3.64               .17          14E    --
                                                                 39                                                                             S

08/02/61  5050           5.0  69.0F  8.4           --     --     39     --     182         --    7.8    --    .10    --             120
  1140    5000     .0     64  20.5C  8.6   378                 1.70           3.64               .22          15E    --
                                                                 41                                                                             S
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MINERAL ANALYSES OF SURFACE WATER

A1 1425.00 PIT R A BIEBER A23D1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE						MILLIGRAMS PER LITER			
10/04/61 1530	5050	 .0	7.9 99	67.0F 19.4C	7.7		--	--	--	--	--	--	--	--	--	-- --				
02/13/62 1035	5050 5000	 355	11.7 93	33.0F 0.6C	7.1 7.1	 131	--	--	10 .44 37	--	44 .88	--	1.8 .05	--	.10 50E	-- --		38		S
03/13/62 0930	5050 5000	 488	10.7 91	37.0F 2.8C	7.5 7.9	 220	--	--	22 .96 42	--	87 1.74	--	8.0 .23	--	.00 120E	-- --		66		S
10/16/62 1500	5050 5000	 8270	7.9 78	48.0F 8.9C	7.0 7.3	 98	--	--	8.7 .38 37	--	41 .82	--	3.0 .08	--	.10 80E	-- --		32		S
12/17/62 1200	5050 5000	 830	10.1 96	45.0 7.2C	7.5 7.8	 149	--	--	12 .52 34	--	70 1.40	--	1.8 .05	--	.10 45E	-- --		51		S
02/18/63 1215	5050 5000	 750	10.2 96	44.0 6.7C	7.5 7.7	 233	--	--	20 .87 37	--	105 2.10	--	6.5 .18	--	.00 40E	-- --		75		S
03/18/63 1230	5050 5000	 350	11.7 107	42.0F 5.6C	7.8 7.9	 246	--	--	21 .91 37	--	112 2.24	--	7.0 .20	--	.00 10E	-- --		79		S
04/15/63 1105	5050 5000	 2300	10.2 97	45.0 7.2C	7.5 7.8	 162	--	--	12 .52 32	--	75 1.50	--	2.0 .06	--	.00 35E	-- --		56		S
05/13/63 1050	5050 5000	 1750	9.4 100	53.0F 11.7C	7.6 7.6	 199	14 .70 41	5.6 .46 27	11 .48 28	2.4 .06 4	75 1.50 88	5.6 .12 7	2.5 .07 4	1.1 .02 1	.00 40E	.0 27.0	134 114	58 0	0.6 0.8	E
06/05/63 1330	5050 5000	4.05 487	8.5 103	64.0F 17.8C	8.1 8.3	 203	--	--	14 .61 28	--	101 2.02	--	2.4 .07	--	.10 40E	-- --		77		S
08/08/63 1030	5050 5000	 30E	11.3 147	71.0 21.6C	8.3 8.3	 262	--	--	22 .96 34	--	130 2.60	--	3.8 .11	--	.00 3E	-- --		93		S
09/12/63 1330	5050 5000	 18E	12.3 149	64.0F 17.8C	8.3 8.6	 241	18 .90 35	9.1 .75 29	19 .83 32	3.2 .08 3	118 2.36 89	7.0 .15 6	4.8 .14 5	.4 .01	.00 1E	.2 39.0	162 171	82 0	0.9 1.4	

MINERAL ANALYSES OF SURFACE WATER

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 DATE     SAMPLER  G.H.   DO     TEMP   FIELD                                           MILLIGRAMS PER LITER         MILLIGRAMS PER LITER
 TIME     LAB      Q      SAT           LABORATORY   MINERAL CONSTITUENTS IN            MILLIEQUIVALENTS PER LITER
                  DEPTH                 PH    EC                                        PERCENT REACTANCE VALUE      B      F      TDS    TH    SAR    REM
                                                      CA     MG     NA     K     CACO3      SO4    CL    NO3    TURB  SIO2    SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

               A1  1425.00          PIT R A BIEBER                                     A23D1 CONTINUED

10/10/63  5050     2.73   9.3   62.0F   8.2           --     --     30     --    166        --    8.2   --     .00    --                   111
  1130    5000       60   110   16.7C   8.1   346                 1.31          3.32              .23          10E    --
                                                                    37                                                                          S

11/06/63  5050     3.25  10.0   49.0F   7.9           --     --     26     --    133        --    7.6   --     .00    --                    92
  1035    5000      166   101    9.4C   8.1   285                 1.13          2.66              .21          20E    --
                                                                    38                                                                          S

12/04/63  5050     3.19  11.3   40.0F   8.0           --     --     23     --    114        --    5.0   --     .10    --                    77
  1645    5000      151   100    4.4C   8.2   250                 1.00          2.28              .14          10E    --
                                                                    39                                                                          S

09/28/77  5050            7.8   56.0F   7.5   310     --     --     --     --    133        --    --    --     --     --
  1300    5050             86   13.3C         314                               2.66                            1AF    --
                                                                                                                                                S

05/22/78  5050                  62.0F   8.0   187     --     --     15     --     84        --    1.9   --     .00    --                    65
  1130    5050                  16.7C   8.0   180                  .65          1.68              .05                 --
                                                                    33                                                                          S

06/28/78  5050            7.4   63.0F   8.0   256     --     --     --     --     --        --    --    --     --     --
  0730    5050             88   17.2C                                                                           14AF    --
                                                                                                                                                S

06/28/78  5050            7.5   68.0F   8.0   255     --     --     23     --    124        --    2.7   --     .00    --                    89
  1130    5050             95   20.0C                             1.00          2.48              .08          13AF    --
                                                                    36                                                                          S

06/28/78  5050            8.3   69.1F   8.2   249     --     --     --     --     --        --    --    --     --     --
  1620    5050            106   20.6C                                                                           16AF    --

06/28/78  5050            8.8   67.0F   8.2   250     --     --     --     --     --        --    --    --     --     --
  2040    5050            110   19.4C                                                                           14AF    --

06/28/78  5050            5.6   66.0F   7.7   247     --     --     --     --     --        --    --    --     --     --
  2315    5050             69   18.9C                                                                           14AF    --

06/29/78  5050            6.4   65.0F   7.9   236     --     --     --     --     --        --    --    --     --     --
  0330    5050             78   18.3C                                                                           13AF    --

08/02/78  5050            7.0   72.0F   8.4   255     --     --     --     --     --        --    --    --     --     --
  0715    5050             92   22.2C                                                                            6AF    --
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MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MG	NA	K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
A1	1425.00			PIT R A BIEBER								A23D1 CONTINUED								
08/02/78	5050		7.8	79.0F	8.4	257	--	--	24	--	130	--	3.0	--	.10	--		88		
1145	5050		110	26.1C					1.04		2.60		.08		6AF	--				
									37											S
08/02/78	5050		8.2	83.0	8.5	261	--	--	--	--	--	--	--	--	--	--				
1620	5050		121	28.3C											5AF	--				
08/02/78	5050		8.2	77.0F	8.4	254	--	--	--	--	--	--	--	--	--	--				
2100	5050		114	25.0C											6AF	--				
08/02/78	5050		7.8	75.0F	9.1	239	--	--	--	--	--	--	--	--	--	--				
2340	5050		106	23.9C											4AF	--				
08/03/78	5050		7.4	72.0F	9.0	252	--	--	--	--	--	--	--	--	--	--				
0345	5050		98	22.2C											5AF	--				
05/14/79	5050		8.2	70.0F	7.8		--	--	--	--	--	--	--	--	--	--				
1710	5050		106	21.1C		201									13AF	--				
05/14/79	5050			67.5F	8.0		--	--	--	--	--	--	--	--	--	--				
2105	5050			19.7C		199									14AF	--				
05/15/79	5050		6.9	65.3F	7.9	205	--	--	--	--	--	--	--	--	--	--				
0150	5050		85	18.5C		201									13AF	--				
05/15/79	5050		6.8	62.6F	7.6	210	--	--	--	--	87	--	--	--	--	--				
0535	5050		81	17.0C	8.0	205					1.74				16AF	--				S
05/15/79	5050		7.1	66.2F	7.5		--	--	--	--	--	--	--	--	--	--				
0910	5050		88	19.0C		209									16AF	--				S
05/15/79	5050		7.6	69.8	7.5		--	--	--	--	90	--	--	--	--	--				
1300	5050		98	21.0C	7.8	213					1.80				12AF	--				S
05/16/79	5050		7.6	69.8	7.5	210	--	--	--	--	--	--	--	--	--	--				
1200	5050	150E	98	21.0C												--				S

MINERAL ANALYSES OF SURFACE WATER

A1 1425.00 PIT R A BIEBER

A23D1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE				MILLIGRAMS PER LITER					
06/25/79 1410	5050 5050		8.0 108	74.3F 23.5C	8.0	280 265	--	--	--	--	--	--	.9 .03	--	-- 8AF	-- --				$
06/25/79 1800	5050 5050		8.0 107	73.4F 23.0C	8.1 8.0	260 268	--	--	--	--	119 2.38	--	.9 .03	--	-- 8AF	-- --				$
06/25/79 2205	5050 5050		7.6 101	72.5 22.5C	8.3	265 262	--	--	--	--	--	--	.9 .03	--	-- 8AF	-- --				$
06/26/79 0215	5050 5050		7.1 91	69.8 21.0C	8.3	260 263	--	--	--	--	--	--	.8 .02	--	-- 8AF	-- --				$
06/26/79 0605	5050 5050		6.5 83	68.9 20.5C	7.8 8.1	250 266	--	--	--	--	117 2.34	--	.8 .02	--	-- 8AF	-- --				$
06/26/79 1130	5050 5050		7.1 94	72.5 22.5C	8.1	265 266	--	--	--	--	--	--	.9 .03	--	-- 7AF	-- --				
07/26/79 1230	5050 5050			79.7F 26.5C		265	--	--	--	--	--	--	--	--	--	-- --				
08/15/79 1110	5050 5050		6.4 84	71.6F 22.0C	9.1	250 257	--	--	--	--	--	--	--	--	-- 3AF	-- --				
08/15/79 1500	5050 5050		9.2 125	75.2F 24.0C	9.2	240 253	--	--	--	--	--	--	--	--	-- 4AF	-- --				
08/15/79 1920	5050 5050		9.5 121	69.1F 20.6C	9.2 7.1	255 256	--	--	--	--	87 1.74	--	1.4 .04	--	-- 6AF	-- --				$
08/15/79 2325	5050 5050		7.5 92	65.8 18.8C	9.1	255 256	--	--	--	--	--	--	--	--	-- 6AF	-- --				
08/16/79 0325	5050 5050		4.7 58	64.8F 18.2C	9.3	235	--	--	--	--	--	--	--	--	--	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 1425.00 PIT R A BIEBER A23D1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
08/16/79 0740	5050 5050		3.7 46	65.3F 18.5C	9.1 7.0	230 256	--	--	--	--	86 1.72	--	1.4 .04	--	-- 5AF	-- --				S
08/16/79 1330	5050 5050		6.0 77	69.3F 20.7C	8.9 7.8	250 257	--	--	32 1.39 55	--	100 2.00	--	8.0 .23	--	.10 7A	-- --		56		S
10/22/79 1130	5050 5050		9.2 90	46.6F 8.1C	8.3	280 285	--	--	--	--	--	--	--	--	-- 17AF	-- --				
10/22/79 1515	5050 5050		9.5 93	47.3F 8.5C	8.3	275 287	--	--	--	--	--	--	--	--	-- 16AF	-- --				
10/22/79 1940	5050 5050		9.6 97	49.1F 9.5C	8.1	300 283	--	--	--	--	--	--	--	--	-- 16AF	-- --				
10/22/79 2310	5050 5050		9.0 90	48.9F 9.4C	8.1	300 283	--	--	--	--	--	--	--	--	-- 17AF	-- --				S
10/23/79 0520	5050 5050		9.2 93	49.1F 9.5C	8.0	290 283	--	--	--	--	--	--	--	--	-- 18AF	-- --				S
10/23/79 0740	5050 5050	 100E	9.2 93	49.1F 9.5C	8.1 8.0	290 283	--	--	41 1.78 44	--	166 3.32	--	12 .34	--	.20 18AF	-- --		113		S
10/24/79 0930	5050 5050			49.1F 9.5C	 8.1	 296	--	--	--	--	136 2.72	--	--	--	-- 18AF	-- --				S
01/17/80 1015	5050 5050		9.6 84	39.2F 4.0C	7.1 7.7	140 125	7.0 .35 33	3.0 .25 24	9.0 .39 37	2.6 .07 7	42 .84	--	4.0 .11	--	.10 165A	-- --		30 0	0.7 0.5	S

MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
	A1	1570.00			PIT R NR LOOKOUT							A2301								
06/03/77	5050		8.4	64.4F	8.0	303	--	--	--	--	--	.5	8.0	--	--	--				
0900	5050		102	18.0C								.01	.23		6AF	--				S
07/12/77	5050		7.4	74.0F	8.4	379	--	--	--	--	--	--	--	--	--	--				
1230	5050		100	23.3C											20AF	--				S
07/12/77	5050		7.7	74.0	8.2	383	--	--	--	--	--	--	--	--	--	--				
1525	5050		107	23.3C											20AF	--				S
07/12/77	5050		7.7	76.0	8.3	383	--	--	--	--	--	--	--	--	--	--				
1930	5050		106	24.4C											21AF	--				S
07/12/77	5050		6.6	72.0	8.2	389	--	--	--	--	--	--	--	--	--	--				
2300	5050		87	22.2C											21AF	--				S
07/13/77	5050		5.7	68.0	8.3	382	--	--	--	--	--	--	--	--	--	--				
0300	5050		73	20.0C											20AF	--				S
07/13/77	5050		6.1	68.0	8.2	382	--	--	--	--	--	--	--	--	--	--				
0800	5050		77	20.0C											19AF	--				S
07/13/77	5050		7.0	73.0	8.4	386	--	--	--	--	--	--	--	--	--	--				
1115	5050		93	22.8C											18AF	--				S
07/13/77	5050		7.3	77.0	7.7	389	--	--	--	--	--	--	--	--	--	--				
1510	5050		101	25.0C											21AF	--				S
07/13/77	5050		8.0	74.0F	8.3	385	--	--	--	--	175	--	--	--	--	--				
2040	5050		108	23.3C	8.2						3.50				20AF	--				S
07/14/77	5050		6.4	70.0F	8.4	386	--	--	--	--	172	--	--	--	--	--				
0250	5050		83	21.1C	7.9						3.44				20AF	--				S
07/14/77	5050		6.5	69.1F	7.7	386	--	--	--	--	175	--	--	--	--	--				
0735	5050		83	20.6C	8.5						3.50				18AF	--				S

MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
	A1	1570.00		PIT R NR LOCKOUT								A23D1 CONTINUED								
07/14/77 1045	5050 5050	 15E		71.0F 21.6C	7.7	390	--	--	--	--	--	--	--	--	--	-- --				S
08/24/77 0610	5050 5050		6.3 79	67.0F 19.4C	8.6 7.8	268	--	--	--	--	--	--	--	--	-- 18AF	-- --				S
08/24/77 1000	5050 5050		6.8 84	66.0 18.9C	8.2 8.1	263	--	--	--	--	--	--	--	--	-- 13AF	-- --				S
08/24/77 1330	5050 5050		8.0 100	66.0 18.9C	8.6 8.1	282	--	--	--	--	131 2.62	--	--	--	-- 17AF	-- --				S
08/24/77 1800	5050 5050		7.1 89	67.0 19.4C	8.2 8.2	266	--	--	--	--	--	--	--	--	-- 15AF	-- --				S
08/24/77 2300	5050 5050		6.4 77	64.0 17.8C	7.9 7.7	297	--	--	--	--	--	--	--	--	-- 15AF	-- --				S
08/25/77	5050 5050					272	--	--	--	--	--	--	--	--	-- 17AF	-- --				S
08/25/77 0245	5050 5050		6.7 80	62.6F 17.0C	7.9 8.0	290 293	--	--	24 1.04 30	--	133 2.66	16 .34	5.5 .16	--	.10 14A	-- --		124		S
09/26/77 1200	5050 5050		7.8 82	52.0F 11.1C	 7.6	271	--	--	--	--	130 2.60	--	--	--	-- 18AF	-- --				S
05/22/78 1200	5050 5050			64.0F 17.8C	7.8 8.1	193 200	--	--	16 .70 34	--	87 1.74	--	3.8 .11	--	.10	-- --		68		S
06/28/78 0710	5050 5050		6.8 83	64.9F 18.3C	8.0 8.3	283	--	--	--	--	--	--	--	--	-- 13AF	-- --				
06/28/78 1100	5050 5050		7.3 90	66.2F 19.0C	8.0 8.2	288	--	--	26 1.13 37	--	137 2.74	--	4.8 .14	--	.10 15AF	-- --		96		S

MINERAL ANALYSES OF SURFACE WATER

A1 1570.00 PIT R NR LOCKOUT A23D1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CA	MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
06/28/78 1555	5050 5050		8.0 100	67.0F 19.4C	8.2	264	--	--	--	--	--	--	--	--	-- 13AF	-- --				
06/28/78 2015	5050 5050		7.2 89	66.0F 18.9C	8.3	260	--	--	--	--	--	--	--	--	-- 14AF	-- --				
06/28/78 2250	5050 5050		7.0 86	65.0F 18.3C	7.9	267	--	--	--	--	--	--	--	--	-- 13AF	-- --				
06/29/78 0300	5050 5050		7.0 86	65.0F 18.3C	7.7	266	--	--	--	--	--	--	--	--	-- 16AF	-- --				
08/02/78 0645	5050 5050		5.4 70	70.0F 21.1C	8.4	257	--	--	--	--	--	--	--	--	-- 5AF	-- --				
08/02/78 1120	5050 5050		7.8 108	77.0F 25.0C	8.2 8.0	258	--	--	24 1.04 37	--	132 2.64	--	2.2 .06	--	.00 2AF	-- --		90		S
08/02/78 1550	5050 5050		7.9 114	81.0 27.2C	8.0	248	--	--	--	--	--	--	--	--	-- 3AF	-- --				
08/02/78 2035	5050 5050		7.5 107	80.0F 26.6C	8.4	242	--	--	--	--	--	--	--	--	-- 3AF	-- --				
08/02/78 2315	5050 5050		7.0 97	77.0F 25.0C	8.8	235	--	--	--	--	--	--	--	--	-- 3AF	-- --				
08/03/78 0320	5050 5050		6.2 83	73.0F 22.8C	8.8	233	--	--	--	--	--	--	--	--	-- 4AF	-- --				
05/14/79 1650	5050 5050		8.1 104	69.1F 20.6C	7.9	 203	--	--	--	--	--	--	--	--	-- 14AF	-- --				
05/14/79 2040	5050 5050		7.5 95	68.0F 20.0C	8.1	 197	--	--	--	--	--	--	--	--	-- 15AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 1570.00 PIT R NR LOOKOUT A23D1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CA	MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
05/15/79 0125	5050 5050		7.3 90	65.7F 18.7C	8.1	200 201	--	--	--	--	--	--	--	--	-- 10AF	-- --				
05/15/79 0500	5050 5050		7.3 87	62.6F 17.0C	7.9 7.7	200 196	--	--	--	--	85 1.70	--	--	--	-- 17AF	-- --				S
05/15/79 0845	5050 5050		7.3 90	65.3F 18.5C	7.5	193	--	--	--	--	--	--	--	--	-- 21AF	-- --				S
05/15/79 1235	5050 5050		7.5 95	68.0F 20.0C	7.5 7.7	193	--	--	--	--	82 1.64	--	--	--	-- 18AF	-- --				S
05/16/79 1130	5050 5050	210E	7.5 95	68.0F 20.0C	7.5	190	--	--	--	--	--	--	--	--	--	-- --				S
06/25/79 1345	5050 5050		6.9 96	77.0 25.0C	8.0	260 258	--	--	--	--	--	--	.9 .03	--	-- 9AF	-- --				S
06/25/79 1735	5050 5050		7.1 98	76.1F 24.5C	8.3 8.1	255 262	--	--	--	--	115 2.30	--	.9 .03	--	-- 9AF	-- --				S
06/25/79 2140	5050 5050		6.8 90	72.5 22.5C	8.3	255 256	--	--	--	--	--	--	1.0 .03	--	-- 8AF	-- --				S
06/26/79 0150	5050 5050		6.5 83	68.9F 20.5C	8.3	255 254	--	--	--	--	--	--	.8 .02	--	-- 9AF	-- --				S
06/26/79 0540	5050 5050		6.9 87	68.0F 20.0C	8.2 8.1	245 254	--	--	--	--	112 2.24	--	.8 .02	--	-- 10AF	-- --				S
06/26/79 1055	5050 5050		7.0 92	71.6 22.0C	8.1	260 258	--	--	--	--	--	--	.8 .02	--	-- 7AF	-- --				
03/15/79 1050	5050 5050		7.9 99	67.1F 19.5C	8.9	265 270	--	--	--	--	--	--	--	--	-- 4AF	-- --				S

MINERAL ANALYSES OF SURFACE WATER

DATE	SAMPLER	G.H.	DO	TEMP	FIELD		MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE								MILLIGRAMS PER LITER					REM
TIME	LAB	Q DEPTH	SAT		LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	
	A1	1570.00		PIT R NR LOCKOUT								A23D1 CONTINUED								
08/15/79 1435	5050 5050		8.5 110	69.8F 21.0C	9.0	265 273	--	--	--	--	--	--	--	--	-- 4AF	-- --				
08/15/79 1855	5050 5050		8.3 106	69.3F 20.7C	8.8 8.6	280 275	--	--	--	--	111 2.22	--	1.2 .03	--	-- 4AF	-- --				S
08/15/79 2300	5050 5050		7.7 95	66.2F 19.0C	8.9	275 272	--	--	--	--	--	--	--	--	-- 5AF	-- --				S
08/16/79 0300	5050 5050		7.2 88	64.4F 18.0C	9.0 8.8	255 277	--	--	--	--	113 2.26	--	1.0 .03	--	-- 6AF	-- --				S
08/16/79 0705	5050 5050		7.1 64	61.3F 16.3C	8.7	260 276	--	--	--	--	--	--	--	--	-- 2AF	-- --				
08/16/79 1300	5050 5050	30E	7.6 95	67.1F 19.5C	8.6 8.2	275 279	--	--	24 1.04 36	--	129 2.58	--	5.0 .14	--	.10 5AF	-- --		91		S
10/22/79 1100	5050 5050		9.8 96	46.9F 8.3C	8.3	370 373	--	--	--	--	--	--	--	--	-- 21AF	-- --				
10/22/79 1450	5050 5050		9.9 95	45.7F 7.6C	8.3	375 378	--	--	--	--	--	--	--	--	-- 21AF	-- --				
10/22/79 1910	5050 5050		9.8 96	46.9F 8.3C	8.3	395 375	--	--	--	--	--	--	--	--	-- 18AF	-- --				
10/22/79 2245	5050 5050		9.8 95	45.9F 7.7C	8.3	405 377	--	--	--	--	--	--	--	--	-- 19AF	-- --				S
10/23/79 0455	5050 5050		9.5 92	46.4F 8.0C	8.3	395 390	--	--	--	--	--	--	--	--	-- 19AF	-- --				S
10/23/79 0715	5050 5050	90E	9.8 95	46.4F 8.0C	8.3 8.0	400 394	--	--	36 1.57 44	--	146 2.92	--	10 .28	--	.20 19AF	-- --		101		S

MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
			MINERAL CONSTITUENTS IN								MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE				MILLIGRAMS PER LITER					
	A1	1570.00			PIT R NR LOOKOUT							A23D1 CONTINUED								
10/24/79	5050			48.2F		370	--	--	--	--	157	--	--	--	--	--				
0900	5050			9.0C	8.2						3.14				16AF	--				
																				S
01/17/80	5050		10.3	40.1F	7.2	125	9.0	4.0	13	4.4	43	--	7.0	--	.30	--		39	0.9	
1045	5050		92	4.5C	7.8	124	.45	.33	.57	.11	.86		.20		150A	--		0	0.7	
							31	23	39	8										S
	A1	1680.00			PIT R NR CANBY							A23D4								
04/11/51	5050	3.07	8.4	57.2F	7.5		--	--	15	--	74	--	5.0	--	--	--		60		
1140	5000	226	94	14.0C	7.5	178			.65		1.48		.14		140E	--				
									35											S
05/09/51	5050	4.03	8.0	56.3F	7.5		15	4.9	13	3.7	75	7.9	2.2	2.2	.24	--		58	0.7	
1050	5000	718	89	13.5C	7.4	168	.75	.40	.57	.09	1.50	.16	.06	.04		28.0	122	0	0.9	
							41	22	31	5	85	9	3	2						
06/17/51	5050	2.46	7.8	73.4F	8.1		--	--	--	--	119	--	4.8	--	--	--		74		
1105	5050	40	105	23.0C	7.9	241					2.38		.14		55E	--				
																				S
07/11/51	5050	2.42	7.4	70.0F	8.3		--	--	--	--	128	--	1.0	--	--	--		86		
1045	5050	33	96	21.1C	7.9	280					2.56		.03		40E	--				
																				S
08/15/51	5050	2.64	7.9	69.8F	7.0		--	--	--	--	131	--	8.0	--	--	--		100		
1035	5050	79	102	21.0C	7.1	292					2.62		.23		30E	--				
																				S
09/13/51	5050	2.42	7.0	57.2F	7.6		20	11	26	5.0	136	13	5.8	1.0	.10	.0		95	1.2	
0800	5000	33	79	14.0C	7.3	287	1.00	.90	1.13	.13	2.72	.27	.16	.02		31.0	194	0	1.9	
							32	28	36	4	86	9	5	1						
10/10/51	5050	2.56	8.8	55.4F	7.8		--	--	2.8	--	128	--	7.0	--	--	--		85		
1045	5000	60	97	13.0C	7.3	288			.12		2.56		.20		100E	--				
									7											S
11/14/51	5050	2.72	11.0	41.9F	7.4		--	--	26	--	99	--	6.8	--	--	--		68		
1645	5000	101	101	5.5C	7.2	238			1.13		1.98		.19		80E	--				
									45											S
04/16/52	5050	5.85	9.0	50.4F	7.7		--	--	--	--	62	--	.0	--	--	--		50		
0930	5050	1960	93	10.2C		127					1.24		.00		45E	--				
																				S

MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MG	NA	K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
	A1	1680.00		PIT R NR CANBY								A23D4 CONTINUED								
05/13/52 1015	5050 5000	4.43 970	8.0 93	59.9F 15.5C	7.7 7.6	149	14 .70 46	4.4 .36 24	9.1 .40 26	2.3 .06 4	68 1.36 91	4.9 .10 7	1.2 .03 2	.6 .01 1	.03	.0 28.0	105	53 0	0.5 0.6	
06/11/52 0930	5050 5050	3.85 610	7.5 82	54.9F 12.7C	7.6 7.5	179	--	--	--	--	82 1.64	--	3.0 .08	--	-- 30E	-- --		62		S
07/08/52 1325	5050 5050	3.06 209	6.0 85	78.8F 26.0C	8.3 7.5	190	--	--	--	--	87 1.74	--	3.0 .08	--	-- 20E	-- --		64		S
08/14/52 1020	5050 5050	2.59 66	8.0 105	70.7F 21.5C	8.4 7.6	216	--	--	--	--	98 1.96	--	6.0 .17	--	-- 25E	-- --		70		S
09/11/52 0910	5050 5000	2.57 62	8.1 86	53.2 11.8C	7.4 7.4	222	--	--	--	--	102 2.04	--	1.1 .03	--	--	-- --		71		S
10/16/52 1245	5050 5000	2.70 93	9.6 110	59.0 15.0C	8.3 7.8	254	20 1.00 36	8.0 .66 24	22 .96 35	4.5 .12 4	113 2.26 84	12 .25 9	6.2 .17 6	1.0 .02 1	.10	.0 31.0	173	83 0	1.1 1.6	
11/18/52 1115	5050 5050	2.88 146	12.1 102	36.5F 2.5C	7.8	244	--	--	--	--	102 2.04	--	5.0 .14	--	-- 39E	-- --		72		S
03/25/53 1530	5050 5000	3.81 586	9.2 96	51.8F 11.0C	7.6 7.6	175	13 .65 38	5.2 .43 25	14 .61 36	--	70 1.40	--	5.5 .16	--	.04	-- --		54 0	0.8 0.9	S
04/15/53 0845	5050 5000	3.05 205	9.5 93	46.4 8.0C	7.9 7.8	200	16 .80 40	5.6 .46 23	17 .74 37	--	86 1.72	--	5.5 .16	--	.03 70E	-- --		63 0	0.9 1.2	S
05/06/53 0830	5050 5000	2.53 53	7.7 88	59.0F 15.0C	7.6 7.9	175	15 .75 40	5.2 .43 23	14 .61 32	3.7 .09 5	80 1.60 88	6.6 .14 8	2.0 .06 3	1.3 .02 1	.00 140E	.2 31.0	127	59 0	0.8 1.0	
06/11/53 0750	5050 5050	6.20 2150	7.3 81	55.9F 13.3C	7.3	168	--	--	--	--	72 1.44	--	4.0 .11	--	-- 70E	-- --		56		S
07/09/53 0900	5050 5050	3.26 294	7.4 90	64.4F 18.0C	6.8	190	--	--	14 .62 26	--	92 1.84	--	.0 .00	--	.09 50E	-- --		86		S

MINERAL ANALYSES OF SURFACE WATER

MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE

MILLIGRAMS PER LITER

A1 I680.00 PIT R NR CANBY A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
09/23/53	5050	2.73	7.8	59.0F			19	9.0	21	5.1	115	8.2	5.0	.9	.07	.5		84	1.0	
0830	5000	101	89	15.0C	7.7	254	.95	.74	.91	.13	2.30	.17	.14	.01	40E	34.0	171	0	1.5	
							35	27	33	5	88	6	5							
10/07/53	5050	2.78	8.2	53.6	8.0		18	6.1	20	5.0	107	--	4.8	--	.06	--		70	1.0	
1600	5000	115	88	12.0C	8.2	235	.90	.50	.87	.13	2.14		.14		87E	--		0	1.5	
							38	21	36	5										S
11/11/53	5050	2.69	9.8	46.4F	8.0		--	--	29	--	111	--	9.0	--	.06	--		77		
1215	5050	90	96	8.0C		263			1.28		2.22		.25		20E	--				
									45											S
12/15/53	5050	2.84	12.3	37.4	7.6		19	7.9	34	4.5	113	--	8.5	--	.14	--		80	1.7	
1330	5000	133	105	3.0C	7.9	299	.95	.65	1.48	.12	2.26		.24		49E	--		0	2.4	
							30	20	46	4										S
04/15/54	5050	3.29	9.1	55.9F	7.8		14	5.9	14	2.3	73	--	3.0	--	.03	--		59	0.8	
1030	5000	307	100	13.3C	8.0	175	.70	.49	.61	.06	1.46		.08		45E	--		0	0.9	
							38	26	33	3										S
05/06/54	5050	3.09	7.5	61.0	7.8		18	6.1	17	4.0	93	9.1	4.8	.8	.09	.0		70	0.9	
0810	5000	218	88	16.1C	8.0	214	.90	.50	.74	.10	1.86	.19	.14	.01	30E	30.0	146	0	1.2	
							40	22	33	4	85	9	6							
06/08/54	5050	2.87	7.1	57.9F	7.7		20	7.5	23	5.0	117	--	5.0	--	.25	--		81	1.1	
1100	5000	143	80	14.4C	8.4	255	1.00	.62	1.00	.13	2.34		.14		28E	--		0	1.7	
							36	23	36	5										S
07/14/54	5050	2.56	7.0	79.0F	8.3		26	5.2	25	4.7	126	--	4.8	--	.17	--		86	1.2	
1400	5000	60	100	26.1C	7.4	257	1.30	.43	1.09	.12	2.52		.14		13E	--		0	1.8	
							44	15	37	4										S
08/10/54	5050		7.7	73.9F	7.9		--	--	--	--	--	--	--	--	--	--				
0730	5050	22	104	23.3C												--				
09/15/54	5050		7.4	59.0F	7.6		21	8.6	19	4.9	118	6.8	3.5	.9	.08	.1		88	0.9	
1400	5000	119	85	15.0C	7.5	246	1.05	.71	.83	.13	2.36	.14	.10	.01	50E	29.0	165	0	1.4	
							39	26	31	5	90	5	4							
10/13/54	5050	3.42	8.0	49.1F	7.5		23	5.0	27	5.6	128	--	6.0	--	.13	--		78	1.3	
0845	5000	63	81	9.5C	7.8	285	1.15	.41	1.17	.14	2.56		.17		50E	--		0	2.0	
							40	14	41	5										S
11/10/54	5050	2.83	9.3	45.5F	7.9		20	8.5	32	5.5	125	--	10	--	.14	--		85	1.5	
0830	5000	43	90	7.5C	8.1	294	1.00	.70	1.39	.14	2.50		.28		30E	--		0	2.3	
							31	22	43	4										S

MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MG	NA	K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
	A1	1680.00			PIT R NR CANBY							$A2_3D4$ CONTINUED								
03/02/55 1020	5050 5000	2.70 119	10.5 88	36.0F 2.2C	7.4 8.1	252	19 .95 35	6.7 .55 20	25 1.09 40	5.0 .13 5	111 2.22	--	7.0 .20	--	.00 80E	-- --		75 0	1.3 1.8	S
04/01/55 1020	5050 5000	3.03 202	9.3 91	46.9 8.3C	7.8 7.7	201	11 .55 25	9.9 .81 36	18 .78 35	3.5 .09 4	87 1.74	--	6.4 .18	--	.12 60E	-- --		68 0	0.9 1.2	S
05/11/55 0800	5050 5000	3.10 234	7.5 86	59.0F 15.0C	7.5 7.1	177	15 .75 39	5.0 .41 22	15 .65 34	3.7 .09 5	80 1.60 86	7.1 .15 8	3.0 .08 4	1.3 .02 1	.13 25E	.4 34.0	132	58 0	0.9 1.0	
06/15/55 0800	5050 5000	2.47 41	7.8 93	62.1F 16.7C	7.6 7.8	311	26 1.30 38	8.5 .70 21	29 1.26 37	5.7 .15 4	149 2.98	--	3.7 .10	--	.16 20E	-- --		100 0	1.3 2.1	S
07/13/55 0830	5050 5000	2.64 75	7.1 92	70.0 21.1C	7.6 7.8	303	21 1.05 31	11 .90 27	30 1.31 39	4.9 .13 4	142 2.84	--	4.0 .11	--	.19 40E	-- --		96 0	1.3 2.2	S
08/17/55 0800	5050 5000	2.19 6.0	7.2 83	59.0F 15.0C	7.8 8.1	302	25 1.25 38	10 .82 25	25 1.09 33	5.3 .14 4	150 3.00	--	4.5 .13	--	.10 25E	-- --		105 0	1.1 1.8	S
09/14/55 0850	5050 5000	2.60 67	7.9 92	60.1 15.6C	7.4 7.7	275	22 1.10 37	10 .82 28	21 .91 31	5.1 .13 4	131 2.62 92	5.0 .10 4	4.0 .11 4	.6 .01	.10 10E	.5 32.0	178	96 0	0.9 1.5	
10/12/55 0920	5050 5000	2.47 41	9.8 102	51.1F 10.6C	7.9 8.2	315	22 1.10 32	9.4 .77 23	32 1.39 41	6.1 .16 5	145 2.90	--	6.5 .18	--	.18 40E	-- --		94 0	1.4 2.4	S
11/16/55 0930	5050 5000	2.46 36	11.6 94	34.0F 1.1C	7.1 7.8	280	19 .95 32	6.7 .55 18	31 1.35 45	5.8 .15 5	119 2.38	--	8.4 .24	--	.16 40E	-- --		75 0	1.6 2.3	S
05/09/56 1140	5050 5000	4.05 750	9.0 97	54.0F 12.2C	7.0 7.5	174	15 .75 39	5.5 .45 23	15 .65 34	3.0 .08 4	82 1.64 86	9.0 .19 10	2.5 .07 4	.6 .01 1	.02 25E	.2 30.0	130	60 0	0.8 1.0	
06/13/56 1030	5050 5000	3.00 195	7.4 93	66.9F 19.4C	7.7 7.6	187	17 .85 41	5.8 .48 23	15 .65 32	3.2 .08 4	93 1.86	--	.8 .02	--	.13 25E	-- --		66 0	0.8 1.1	S
07/18/56 1030	5050 5000	1.47 124	7.7 104	73.9F 23.3C	7.7 7.9	189	17 .85 41	5.4 .44 21	16 .70 34	3.6 .09 4	96 1.92	--	1.7 .05	--	.07 20E	-- --		65 0	0.9 1.2	S

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY

A2,D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CA	MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
08/15/56 1140	5050 5000	2.71 93	8.0 102	68.0F 20.0C	7.7 7.4	221	18 .90 37	6.7 .55 23	19 .83 34	5.1 .13 5	103 2.06	--	3.0 .08	--	.10 9E	-- --		73 0	1.0 1.4	S
09/19/56 1115	5050 5000	2.78 114	8.1 94	60.1 15.6C	7.0 7.6	225	17 .85 34	8.4 .69 27	20 .87 34	4.6 .12 5	111 2.22 88	12 .25 10	1.5 .04 2	.9 .01	.10 20E	.2 38.0	169	77 0	1.0 1.5	
10/17/56 1130	5050 5000	2.86 138	9.8 100	50.0F 10.0C	7.7 7.7	270	20 1.00 34	7.6 .63 22	26 1.13 39	5.9 .15 5	126 2.52	--	5.5 .16	--	.05 20E	-- --		81 0	1.3 1.9	S
04/10/57 1145	5050 5000	3.60 485	9.1 97	53.1F 11.7C	7.7 8.0	162	15 .75 42	5.8 .48 27	11 .48 27	2.4 .06 3	75 1.50	--	2.5 .07	--	.06 30E	-- --		62 0	0.6 0.7	S
05/08/57 1230	5050 5000	3.80 600	7.8 88	57.9 14.4C	7.5 7.5	150	14 .70 42	4.9 .40 24	11 .48 29	2.6 .07 4	73 1.46 92	5.8 .12 8	.0 .00	.6 .01 1	.00 45E	.6 31.0	114	55 0	0.6 0.7	
06/12/57 1025	5050 5000	3.85 630	6.8 85	66.9F 19.4C	7.5 7.3	179	18 .90 44	5.8 .48 24	13 .57 28	3.5 .09 4	89 1.78	--	1.3 .04	--	.11 25E	-- --		69 0	0.7 0.9	S
07/10/57 1050	5050 5000	2.83 130	8.0 104	70.0F 21.1C	8.1 7.7	189	--	--	15 .65 33	--	90 1.80	--	3.2 .09	--	.22 20E	-- --		65		S
08/14/57 1210	5050 5000	2.48 41	8.1 103	68.0 20.0C	8.1 7.6	225	--	--	17 .74 33	--	104 2.08	--	3.2 .09	--	.08 25E	-- --		76		S
09/18/57 1030	5050 5000	2.65 78	7.5 86	59.0F 15.0C	7.8 7.6	253	20 1.00 38	8.0 .66 25	19 .83 31	5.9 .15 6	116 2.32 90	4.8 .10 4	5.2 .15 6	.6 .01	.00 40E	.2 38.0	171	83 0	0.9 1.4	
10/24/57 1430	5050 5000	2.76 108	9.5 102	54.0F 12.2C	8.1 7.6	232	--	--	20 .87 38	--	106 2.12	--	5.2 .15	--	.15 20E	-- --		72		S
11/13/57 1625	5050 5000	2.82 128	10.2 98	45.0 7.2C	7.9 7.9	224	--	--	21 .91 40	--	97 1.94	--	5.0 .14	--	.00 22E	-- --		69		S
04/16/58 1625	5050 5000	3.93 700	8.8 101	59.0F 15.0C	7.7 7.5	135	--	--	8.4 .37 27	--	64 1.28	--	2.0 .06	--	.08 54E	-- --		50		S

MINERAL ANALYSES OF SURFACE WATER

MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE — MILLIGRAMS PER LITER

A1 1680.00 PIT R NR CANBY A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
05/14/58 1125	5050 5000	4.39 998	7.8 89	59.0F 15.0C	7.7 7.6	179	15 .75 38	6.1 .50 26	14 .61 31	3.9 .10 5	80 1.60 84	7.7 .16 8	4.2 .12 6	1.1 .02 1	.12 40E	.0 29.0	129	63 0	0.8 1.0	
06/18/58 1250	5050 5000	3.33 340	7.3 101	75.9F 24.4C	7.9 7.8	205	--	--	17 .74 36	--	95 1.90	--	2.5 .07	--	.00 17E	-- --		66		S
07/16/58 1100	5050 5000	2.59 63	7.8 105	73.9 23.3C	7.7 8.1	199	--	--	17 .74 37	--	95 1.90	--	3.2 .09	--	.10 30E	-- --		64		S
08/13/58 1005	5050 5000	3.01 200	6.9 91	71.1 21.7C	7.7 7.7	225	--	--	18 .78 34	--	104 2.08	--	4.6 .13	--	.10 35E	-- --		77		S
09/10/58 1055	5050 5000	2.83 130	7.2 87	64.0 17.8C	7.5 7.6	238	16 .80 31	9.0 .74 28	21 .91 35	5.9 .15 6	108 2.16 85	11 .23 9	4.5 .13 5	.9 .01	.10 30E	.0 34.0	167	77 0	1.0 1.5	
10/15/58 1315	5050 5000	2.84 134	8.4 93	55.9F 13.3C	7.7 7.9	238	--	--	21 .91 38	--	107 2.14	--	5.0 .14	--	.20 40E	-- --		75		S
11/12/58 1300	5050 5000	2.78 114	10.3 96	43.0 6.1C	7.6 7.7	256	--	--	26 1.13 43	--	112 2.24	--	7.5 .21	--	.30 40E	-- --		76		S
02/04/59 1730	5050 5000	2.70 95	10.6 94	39.9 4.4C	7.7 7.6	262	--	--	28 1.22 44	--	112 2.24	--	8.5 .24	--	.10 10E	-- --		79		S
03/05/59 1405	5050 5000	 139	9.8 98	48.0 8.9C	7.8 7.6	218	--	--	20 .87 39	--	93 1.86	--	8.0 .23	--	.10 30E	-- --		67		S
04/08/59 1700	5050 5000	2.69 92	9.0 105	60.1 15.6C	7.9 8.0	256	--	--	23 1.00 38	--	108 2.16	--	7.2 .20	--	.00 100E	-- --		82		S
05/07/59 1035	5050 5000	2.70 95	7.9 89	57.9 14.4C	7.8 7.6	301	20 1.00 32	11 .90 28	26 1.13 36	5.0 .13 4	135 2.70 83	18 .37 11	6.0 .17 5	1.0 .02 1	.30 50E	.0 32.0	200	95 0	1.2 1.9	
06/04/59 1600	5050 5000	2.66 84	7.2 93	70.0F 21.1C	7.8 8.2	346	24 1.20 31	11 .90 23	38 1.65 42	7.0 .18 5	157 3.14 81	25 .52 13	7.0 .20 5	1.1 .02 1	.20	.3 30.0	237	106 0	1.6 2.8	

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY — A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/16/59 1300	5050 5000	2.59 65	7.3 103	78.1F 25.6C	7.9 8.2	235	--	--	28 1.22 42	--	111 2.22	--	5.2 .15	--	.10 40E	-- --		84		S
08/12/59 1540	5050 5000	2.31 23	8.5 114	73.0F 22.8C	8.3 8.2	261	--	--	23 1.00 36	--	128 2.56	--	4.5 .13	--	.20 16E	-- --		89		S
09/09/59 1700	5050 5000	2.11 9.0	7.8 99	68.0F 20.0C	7.9 7.9	253	20 1.00 36	8.3 .68 25	22 .96 35	5.1 .13 5	121 2.42 87	9.0 .19 7	4.9 .14 5	1.0 .02 1	.10 45E	.0 33.0	176	84 0	1.0 1.6	
10/14/59 1530	5050 5000	2.16 11	8.9 101	57.9F 14.4C	7.9 7.6	314	--	--	31 1.35 42	--	130 2.60	--	12 .34	--	.20 120E	-- --		95		S
11/12/59 1200	5050 5000	2.30 20	12.4 115	42.6F 5.9C	8.1 8.4	376	--	--	47 2.04 51	--	148 2.96	--	20 .56	--	.30 3E	-- --		98		S
12/09/59 1530	5050 5000	2.45 38	11.9 95	33.1F 0.6C	7.7 7.8	329	--	--	39 1.70 49	--	133 2.66	--	14 .39	--	.20 60E	-- --		88		S
01/06/60 1530	5050 5000	2.48 42	11.2 91	34.0F 1.1C	7.3 8.1	285	--	--	32 1.39 45	--	121 2.42	--	9.5 .27	--	.10 12E	-- --		84		S
02/10/60 1855	5050 5000	5.13 1450	9.9 84	37.0 2.8C	7.2 7.7	124	--	--	14 .61 41	--	54 1.08	--	4.0 .11	--	.20 350E	-- --		44		S
03/11/60 0730	5050 5000	3.63 528	9.7 88	41.0F 5.0C	7.3 7.3	199	--	--	19 .83 39	--	74 1.48	--	6.5 .18	--	.10 600E	-- --		64		S
04/13/60 1415	5050 5000	2.91 164	9.0 103	59.0F 15.0C	7.7 7.9	195	--	--	15 .65 34	--	86 1.72	--	5.4 .15	--	.10 25E	-- --		62		S
05/11/60 1055	5050 5000	3.06 222	7.5 92	64.9F 18.3C	7.7 7.8	220	17 .85 36	6.8 .56 24	19 .83 35	5.2 .13 5	102 2.04 85	10 .21 9	4.6 .13 5	.5 .01	.20 48E	.4 32.0	156	71 0	1.0 1.4	
06/08/60 1415	5050 5000	2.59 65	8.1 111	75.0F 23.9C	7.9 8.1	270	--	--	26 1.13 40	--	133 2.66	--	9.0 .25	--	.10 15E	-- --		84		S

MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE (MINERAL CONSTITUENTS IN); MILLIGRAMS PER LITER (B, F, TDS, TH, SAR)

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY

A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CA	MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/07/60 1000	5050 5000	2.27 17	6.7 90	73.0F 22.8C	7.9 8.0	284	--	--	25 1.09 37	--	130 2.60	--	7.0 .20	--	.10 25E	-- --		91		S
08/11/60 0915	5050 5000	2.45 33	7.7 99	69.1F 20.6C	7.7 8.0	270	--	--	22 .96 36	--	117 2.34	--	5.0 .14	--	.20 110E	-- --		87		S
09/08/60 1150	5050 5000	2.35 19	8.4 103	64.9 18.3C	7.9 7.9	256	20 1.00 34	11 .90 30	22 .96 32	4.7 .12 4	125 2.50 86	11 .23 8	6.0 .17 6	.0 .00	.30 50E	.3 28.0	178	96 0	1.0 1.6	
10/13/60 1010	5050 5000	2.48 36	9.7 93	45.0F 7.2C	7.7 8.0	337	--	--	34 1.48 43	--	139 2.78	--	9.0 .25	--	.30 20E	-- --		97		S
11/10/60 0925	5050 5000	2.62 69	10.3 93	41.0F 5.0C	7.5 7.6	272	--	--	36 1.57 52	--	110 2.20	--	7.5 .21	--	.10 60E	-- --		73		S
12/15/60 1005	5050 5000	2.47 36	12.1 97	33.1 0.6C	7.7 8.2	326	--	--	36 1.57 46	--	136 2.72	--	12 .34	--	.20 40E	-- --		92		S
01/12/61 1655	5050 5000	2.68 87	10.5 85	34.0 1.1C	7.3 7.9	229	--	--	22 .96 41	--	106 2.12	--	5.0 .14	--	.10 100E	-- --		70		S
02/16/61 1150	5050 5000	3.04 218	10.3 92	39.9F 4.4C	7.5 7.8	204	--	--	18 .78 38	--	87 1.74	--	2.1 .06	--	.10 85E	-- --		64		S
03/09/61 0930	5050 5000	2.54 49	10.3 93	41.0 5.0C	7.9 8.0	293	--	--	41 1.78 51	--	119 2.38	--	11 .31	--	.30 35E	-- --		85		S
04/12/61 1600	5050 5000	2.49 39	10.5 113	53.6 12.0C	8.1 8.3	226	--	--	19 .83 36	--	93 1.86	--	6.5 .18	--	.10 20E	-- --		75		S
05/11/61 0845	5050 5000	2.83 142	8.4 86	50.0F 10.0C	7.9 7.6	296	23 1.15 35	9.6 .79 24	29 1.26 38	4.7 .12 4	130 2.60 78	23 .48 14	8.2 .23 7	1.3 .02 1	.20 100E	.2 31.0	208	97 0	1.3 2.1	
06/15/61 1025	5050 5000	2.47 42	8.4 115	75.0F 23.9C	8.3 8.2	355	--	--	36 1.57 43	--	153 3.06	--	5.4 .15	--	.00 35E	-- --		106		S

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY $A_{23}D4$ CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE										MILLIGRAMS PER LITER			
07/12/61 1815	5050 5000	2.43 34	8.0 114	79.0F 26.1C	8.4 8.5	293	--	--	25 1.09 35	--	141 2.82	--	4.0 .11	--	.00 17E	-- --		102		S
08/02/61 1210	5050 5000	2.06 4.0	8.9 119	73.0 22.8C	8.4 8.5	233	--	--	20 .87 35	--	116 2.32	--	3.5 .10	--	.00 10E	-- --		81		S
09/13/61 1315	5050 5000	2.39 24	9.4 121	69.1F 20.6C	8.1 8.4	326	27 1.35 39	9.4 .77 22	28 1.22 35	5.4 .14 4	153 3.06 86	12 .25 7	8.2 .23 6	.9 .01	.10 30E	.1 32.0	215	106 0	1.2 2.0	
10/04/61 1655	5050 5000	2.28 14	10.4 126	64.0F 17.8C	7.9 8.5	354	--	--	30 1.31 36	--	154 3.08	--	10 .28	--	.20 25E	-- --		115		S
11/15/61 1055	5050 5000	2.43 30	11.8 101	37.0 2.8C	8.0 8.0	340	--	--	37 1.61 46	--	143 2.86	--	12 .34	--	.20 20E	-- --		94		S
12/06/61 1215	5050 5000	2.55 61	11.2 93	35.1F 1.7C	7.6 7.8	304	--	--	30 1.31 44	--	123 2.46	--	10 .28	--	.10 35E	-- --		84		S
01/10/62 1045	5050 5000	2.43 35	10.6 93	39.0F 3.9C	7.9 8.2	333	--	--	35 1.52 46	--	134 2.68	--	13 .37	--	.10 20E	-- --		91		S
02/13/62 1140	5050 5000	3.80 630	10.2 87	37.0 2.8C	7.4 7.3	157	--	--	15 .65 41	--	59 1.18	--	5.1 .14	--	.00 400E	-- --		47		S
03/13/62 1020	5050 5000	2.86 150	10.5 92	39.0F 3.9C	7.7 7.8	279	--	--	28 1.22 42	--	110 2.20	--	12 .34	--	.00 200E	-- --		84		S
04/10/62 1335	5050 5000	3.38 385	9.3 99	53.1 11.7C	7.5 8.0	134	--	--	9.9 .43 31	--	51 1.02	--	14 .39	--	.10 75E	-- --		48		S
05/02/62 1315	5050 5000	2.90 170	8.8 108	64.9 18.3C	7.9 7.8	234	20 1.00 39	6.7 .55 21	21 .91 35	4.9 .13 5	103 2.06 83	13 .27 11	5.2 .15 6	.5 .01	.10 20E	.2 32.0	165	77 0	1.0 1.5	
06/14/62 0925	5050 5000	2.32 19	8.0 100	66.9F 19.4C	8.0 8.2	302	--	--	34 1.48 44	--	136 2.72	--	8.0 .23	--	.00 15E	-- --		94		S

MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	 EC	MINERAL CONSTITUENTS IN CA	 MG	 NA	 K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	 SO4	 CL	 NO3	MILLIGRAMS PER LITER B TURB	 F SIO2	 TDS SUM	 TH NCH	 SAR ASAR	REM
	A1	1680.00			PIT R NR CANBY							A23D4 CONTINUED								
07/10/62 1525	5050 5000	2.41 32	7.7 109	78.1F 25.6C	 8.2	 324	--	--	34 1.48 41	--	153 3.06	--	6.0 .17	--	.20 15E	-- --		106		S
08/15/62 1300	5050 5000	2.46 45	7.4 98	72.0 22.2C	7.8 7.4	 323	--	--	32 1.39 38	--	153 3.06	--	8.6 .24	--	.00 5E	-- --		113		S
09/17/62 1430	5050 5000	2.32 16	9.3 122	71.1 21.7C	8.1 8.1	 362	27 1.35 33	12 .99 24	38 1.65 40	6.0 .15 4	166 3.32 83	19 .40 10	9.5 .27 7	.9 .01	.10 35E	.2 34.0	248 246	115 0	1.5 2.8	
10/16/62 1620	5050 5000	7.18 3090	8.6 86	48.0 8.9C	7.2 7.4	 132	--	--	13 .57 42	--	52 1.04	--	4.0 .11	--	.10 100E	-- --		39		S
11/19/62 1610	5050 5000	2.85 14	11.5 110	45.0 7.2C	7.3 8.1	 250	--	--	23 1.00 40	--	112 2.24	--	7.5 .21	--	.00 15E	-- --		76		S
12/17/62 1330	5050 5000	3.51 348	10.1 97	45.0 7.2C	7.5 7.9	 201	--	--	18 .78 39	--	87 1.74	--	5.8 .16	--	.10 50E	-- --		62		S
01/14/63 1145	5050 5000	2.53 56	12.0 96	33.1F 0.6C	7.5 8.2	 280	--	--	28 1.22 41	--	118 2.36	--	9.8 .26	--	.00 20E	-- --		86		S
02/18/63 1330	5050 5000	3.30 275	10.3 97	44.1 6.7C	7.5 8.0	 306	--	--	30 1.31 42	--	124 2.48	--	12 .34	--	.10 80E	-- --		90		S
03/18/63 1400	5050 5000	2.90 155	12.3 116	44.1 6.7C	8.2 8.2	 307	--	--	30 1.31 42	--	117 2.34	--	13 .37	--	.00 20E	-- --		90		S
04/15/63 1240	5050 5000	4.19 800	10.2 98	45.0F 7.2C	7.5 7.9	 165	--	--	12 .52 31	--	73 1.46	--	3.0 .08	--	.00 170E	-- --		57		S
05/13/63 1215	5050 5000	5.07 1350	9.1 96	52.0 11.1C	7.4 7.5	 146	13 .65 40	5.6 .46 28	9.8 .43 27	3.0 .08 5	67 1.34 85	6.0 .12 8	2.0 .06 4	3.5 .06 4	.00 160E	.1 25.0	113 108	56 0	0.6 0.6	E
06/05/63 1045	5050 5000	3.36 350	8.3 95	59.0F 15.0C	7.6 8.1	 207	--	--	16 .70 32	--	103 2.06	--	2.0 .06	--	.10 50E	-- --		76		S

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE						MILLIGRAMS PER LITER			
07/10/63 0950	5050 5000	2.58 62	7.9 99	66.9F 19.4C	8.1 7.9	313	--	--	30 1.31 39	--	147 2.94	--	8.6 .24	--	.00 15E	-- --		103		S
08/08/63 1130	5050 5000	2.41 30	7.5 99	72.0F 22.2C	7.3 7.7	267	--	--	22 .96 35	--	125 2.50	--	6.0 .17	--	.00 25E	-- --		89		S
09/12/63 1200	5050 5000	2.63 75	7.9 93	61.0 16.1C	7.8 7.6	322	24 1.20 34	9.7 .80 22	32 1.39 39	7.5 .19 5	156 3.12 89	9.0 .19 5	5.8 .16 5	1.3 .02 1	.10 20E	.3 34.0	225 217	100 0	1.4 2.4	
10/10/63 1015	5050 5000	2.55 55	9.1 99	55.0F 12.8C	8.1 8.1	314	--	--	28 1.22 38	--	151 3.02	--	7.0 .20	--	.00 25E	-- --		98		S
11/06/63 1240	5050 5000	2.72 101	10.5 97	42.1F 5.6C	8.0 8.3	296	--	--	26 1.13 39	--	131 2.62	--	9.2 .26	--	.10 20E	-- --		87		S
12/04/63 1530	5050 5000	2.62 75	13.1 108	35.1 1.7C	8.2 8.4	264	--	--	25 1.09 41	--	117 2.34	--	7.0 .20	--	.20 10E	-- --		80		S
01/08/64 0945	5050 5000	2.60 49	11.4 93	34.0 1.1C	8.1 8.2	294	--	--	28 1.22 41	--	125 2.50	--	9.5 .27	--	.00 20E	-- --		86		S
02/05/64 1400	5050 5000	2.84 149	13.4 114	37.0F 2.8C	8.1 8.2	311	--	--	34 1.48 45	--	130 2.60	--	9.0 .25	--	.10 40E	-- --		91		S
03/04/64 0800	5050 5000	2.59 71	11.4 96	36.0 2.2C	8.0 8.2	331	--	--	34 1.48 44	--	127 2.54	--	13 .37	--	.10 30E	-- --		94		S
04/09/64 1055	5050 5000	3.15 250	9.0 95	52.0F 11.1C	7.9 8.2	191	--	--	17 .74 37	--	85 1.70	--	4.6 .13	--	.10 30E	-- --		64		S
05/06/64 0955	5050 5000	3.63 324	10.0 96	45.0F 7.2C	7.9 8.1	217	18 .90 38	5.8 .48 20	20 .87 37	3.9 .10 4	96 1.92 82	12 .25 11	4.8 .14 6	1.8 .03 1	.10 35E	.3 31.0	166 155	69 0	1.0 1.4	E
06/10/64 1830	5050 5000	4.35 870	8.6 92	53.1F 11.7C	7.5 8.2	205	--	--	18 .78 36	--	92 1.84	--	4.0 .11	--	.10 30E	-- --		69		S

MINERAL ANALYSES OF SURFACE WATER

MILLIGRAMS PER LITER
MINERAL CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
PERCENT REACTANCE VALUE

MILLIGRAMS PER LITER

A1 1680.00 PIT R NR CANBY A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/08/64 0945	5050 5000	3.08 233	7.2 95	72.0F 22.2C	8.2 8.3	219	--	--	18 .78 35	--	102 2.04	--	3.5 .10	--	.10 20E	-- --		74		S
08/06/64 0800	5050 5000	2.58 2.0	6.9 85	64.9 18.3C	8.0 8.4	243	--	--	21 .91 36	--	112 2.24	--	5.5 .16	--	.10 20E	-- --		80		S
09/03/64 0740	5050 5000	2.92 165	7.7 84	55.0F 12.8C	7.6 8.1	285	21 1.05 34	9.1 .75 25	25 1.09 36	6.2 .16 5	130 2.60 86	12 .25 8	5.9 .17 6	.8 .01	.30 20E	-- 32.0	215 190	90 0	1.1 1.8	E
10/06/64 1710	5050 5000	3.66 84	8.6 106	64.9F 18.3C	8.0 8.0	327	--	--	34 1.48 44	--	138 2.76	--	10 .28	--	.30 20E	-- --		96		S
11/12/64 0845	5050 5000	2.65 82	11.5 99	37.9 3.3C	8.1 8.3	284	--	--	27 1.17 40	--	129 2.58	--	7.1 .20	--	.00 20E	-- --		86		S
12/09/64 0920	5050 5000	2.95 185	8.8 78	39.9F 4.4C	7.6 8.3	279	--	--	26 1.13 41	--	120 2.40	--	6.1 .17	--	.10 30E	-- --		80		S
01/19/65 1230	5050 5000	4.55 1000	11.0 89	34 1 C	7.4 7.9	195	--	--	16 .70 36	--	75 1.50	--	5.9 .17	--	.10 40E	-- --		63		S
02/04/65 0845	5050 5000	5.61 1800E	10.5 89	37 3 C	7.4 7.9	161	--	--	14 .61 37	--	62 1.24	--	4.0 .11	--	.10 40E	-- --		52		S
03/04/65 0840	5050 5000	3.47 395	7.9 73	42 F 6 C	7.7 8.2	189	--	--	14 .61 33	--	75 1.50	--	3.7 .10	--	.20 30E	-- --		61		S
04/08/65 0900	5050 5000	3.51 415	9.7 93	45 7 C	7.7 8.0	185	--	--	14 .61 32	--	75 1.50	--	4.0 .11	--	.00 30E	-- --		64		S
05/05/65 1145	5050 5000	4.22 792	8.5 86	49 9 C	7.7 8.1	147	13 .65 43	4.5 .37 24	10 .44 29	2.3 .06 4	64 1.28 85	7.0 .15 10	1.9 .05 3	1.1 .02 1	.00 30E	-- 29.0	108 107	51 0	0.6 0.7	E
06/16/65 0930	5050 5000	3.45 385	6.9 76	56 F 13 C	7.8 8.3	222	--	--	17 .74 32	--	107 2.14	--	2.4 .07	--	.10 35E	-- --		78		S

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY

A2$_3$D$_4$ CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP		FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	R TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/15/65	5050	2.40	7.7	69	F	7.8		--	--	18	--	92	--	4.9	--	.00	--		69		
0915	5000	32	99	21	C	8.3	208			.78		1.84		.14		25E	--				
										36											S
08/12/65	5050	2.84	7.4	66	F	7.6		--	--	18	--	98	--	4.5	--	.20	--		71		
1110	5000	137	92	19	C	8.2	221			.78		1.96		.13		30E	--				
										35											S
09/16/65	5050	3.08	8.1	58		8.1		21	8.1	24	5.9	126	9.0	4.2	2.9	.10	--	207	86	1.1	E
0900	5000	222	92	14	C	7.7	269	1.05	.67	1.04	.15	2.52	.19	.12	.05	30E	36.0	187	0	1.8	
								36	23	36	5	88	7	4	2						
10/05/65	5050	2.65	9.3	56		7.9		--	--	26	--	129	--	5.5	--	.10	--		87		
1620	5000	77	103	13	C	8.5	279			1.13		2.58		.16		10E	--				
										39											S
11/02/65	5050	2.65	10.2	50		8.1		--	--	26	--	130	--	6.2	--	.20	--		82		
1600	5000	81	105	10	C	8.5	274			1.13		2.60		.17		10E	--				
										41											S
12/14/65	5050	2.62	13.0	35		7.9		--	--	27	--	115	--	9.0	--	.10	--		81		
1200	5000	73	107	2	C	8.0	270			1.17		2.30		.25		30E	--				
										42											S
01/18/66	5050	2.72	11.7	33	F	7.5		--	--	30	--	131	--	10	--	.10	--		93		
1350	5000	97	94	1	C	7.9	285			1.31		2.62		.28		40E	--				
										41											S
02/08/66	5050	2.81	11.2	34	F	7.4		--	--	28	--	116	--	8.7	--	.10	--		79		
1730	5000	126	91	1	C	7.9	279			1.22		2.32		.25		50E	--				
										44											S
03/23/66	5050	2.87	10.2	45	F	7.7		--	--	22	--	97	--	6.4	--	.20	--		72		
1225	5000	145	98	7	C	8.1	232			.96		1.94		.18		35E	--				
										40											S
04/19/66	5050	2.92	9.7	48	F	7.6		--	--	19	--	103	--	3.1	--	.00	--		74		
1130	5000	162	97	9	C	7.6	227			.83		2.06		.09		35E	--				
										36											S
05/04/66	5050	2.25	8.8	63		8.0		21	8.4	21	4.3	116	14	6.7	1.0	.00	--	182	87	1.0	
1310	5000	12	106	17	C	7.8	263	1.05	.69	.91	.11	2.32	.29	.19	.02	35E	19.0	165	0	1.5	
								38	25	33	4	82	10	7	1						
06/09/66	5050	2.67	8.1	64	F	7.8		--	--	31	--	148	--	4.5	--	.10	--		100		
1035	5000	70	98	18	C	8.1	312			1.35		2.96		.13		20E	--				
										40											S

Column headings: MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE (CA through NO3); MILLIGRAMS PER LITER (R TURB through TH NCH).

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY	PH	EC	MINERAL CONSTITUENTS IN CA	MG	NA	K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	SO4	CL	NO3	B TURB	F SIO2	MILLIGRAMS PER LITER TDS SUM	TH NCH	SAR ASAR	REM
07/05/66 1035	5050 5000	2.52 50	8.7 108	66 19	F C	8.2 7.7	338	--	--	35 1.52 43	--	157 3.14	--	6.0 .17	--	.10 30E	-- --		101		S
08/15/66 1400	5050 5000	2.47 41	9.8 134	75 24	F C	8.2 8.2	309	--	--	29 1.26 40	--	141 2.82	--	6.6 .19	2.5 .04	.20 10E	-- --		96		S
09/08/66 0740	5050 5000	2.20 7.0	7.6 88	60 16	 C	8.1 8.2	324	24 1.20 34	11 .90 25	30 1.31 37	5.3 .14 4	145 2.90 83	16 .33 9	8.2 .23 7	1.8 .03 1	.10 20E	-- 30.0	231 213	105 0	1.3 2.2	E
10/03/66 1430	5050 5000	2.29 14	10.4 126	64 18	F C	8.4 7.9	325	22 1.10 32	11 .90 26	29 1.26 37	5.4 .14 4	142 2.84	--	8.2 .23	--	.10 50E	-- --		100 0	1.3 2.1	S
11/01/66 1100	5050 5000	2.22 10	11.0 114	51 11	F C	8.3 8.1	289	20 1.00 33	9.8 .81 27	25 1.09 36	4.6 .12 4	135 2.70	--	6.0 .17	--	.10 40E	-- --		90 0	1.1 1.8	S
12/07/66 1230	5050 5000	3.45 385	11.3 95	36 2	 C	7.4 7.8	171	12 .60 33	5.5 .45 25	16 .70 38	2.9 .07 4	67 1.34	--	3.5 .10	--	.00 65E	-- --		52 0	1.0 1.1	S
01/05/67 1445	5050 5000	2.58 71	11.8 94	33 1	 C	7.5 8.1	286	19 .95 31	8.4 .69 22	30 1.31 43	4.5 .12 4	121 2.42	--	7.2 .20	--	.10 35E	-- --		82 0	1.4 2.2	S
02/15/67 1310	5050 5000	3.21 274	12.0 97	34 1	F C	7.4 8.1	228	16 .80 33	6.8 .56 23	23 1.00 41	3.0 .08 3	85 1.70	--	7.0 .20	--	.10 65E	-- --		68 0	1.2 1.6	S
03/08/67 1145	5050 5000	2.79 127	11.4 111	46 8	 C	8.2 8.3	251	18 .90 34	7.6 .63 24	24 1.04 39	3.5 .09 3	101 2.02	--	7.5 .21	--	.10 35E	-- --		76 0	1.2 1.7	S
04/03/67 1205	5050 5000	2.88 154	11.5 118	50 10	 C	8.2 7.9	224	17 .85 36	7.1 .58 24	20 .87 37	2.8 .07 3	91 1.82	--	6.4 .18	--	.00 35E	-- --		72 0	1.0 1.4	S
05/01/67 1030	5050 5000	3.77 553	10.2 99	46 8	F C	7.7 7.6	190	14 .70 35	5.8 .49 24	17 .74 37	2.8 .07 4	77 1.54 79	13 .27 14	3.5 .10 5	1.7 .03 2	.00 30E	-- 24.0	152 128	64 0	0.9 1.1	E
05/12/67 0945	5050 5000	4.30 880	7.3 86	61 16	F C	7.6 7.4	186	15 .75 38	6.1 .50 25	15 .65 33	2.8 .07 4	84 1.68	--	2.4 .07	--	.10 25E	-- --		62 0	0.8 1.0	S

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/06/67 1120	5050 5050	2.99 190	7.8 103	71.5F 21.9C	8.1 7.9	205	--	--	16 .70 34	--	90 1.80	--	3.6 .10	--	.20 25E	-- --		69		S
08/03/67 0730	5050 5050	2.29 18	7.1 88	66.0 18.9C	8.1 7.8	217	--	--	17 .74 33	--	98 1.96	--	4.2 .12	--	.00 40E	-- --		75		S
09/07/67 0950	5050 5050	2.54 56	8.8 109	65.5 18.6C	8.1 6.2	244	19 .95 37	8.8 .72 28	18 .78 30	4.7 .12 5	110 2.20 86	9.4 .20 8	4.8 .14 5	1.8 .03 1	.20	-- --	163 133	84 0	0.9 1.3	
10/10/67 0930	5050 5050	2.66 82	9.3 100	54 F 12 C	8.2 8.0	306	--	--	28 1.22 40	--	138 2.76	--	6.1 .17	--	.10 60E	-- --		93		S
11/07/67 0810	5050 5050	2.51 52	10.1 99	47 8 C	8.2 8.3	366	--	--	38 1.65 46	--	152 3.04	--	10 .28	--	.20 30E	-- --		97		S
12/13/67 1500	5050 5050	2.64 80	12.2 96	32 F 0 C	7.6 8.0	379	--	--	38 1.65 44	--	150 3.00	--	13 .37	--	.30 40E	-- --		105		S
01/05/68 1020	5050 5050	2.54 59	11.1 86	31 F 1 C	7.6 7.9	314	--	--	31 1.35 42	--	136 2.72	--	5.8 .16	--	.10 20E	-- --		95		S
02/09/68 0940	5050 5050	3.46 400	9.8 77	32.0F 0.0C	7.4 7.5	253	--	--	27 1.17 46	--	94 1.88	--	5.8 .16	--	.10 90E	-- --		68		S
03/07/68 1355	5050 5050	3.03 206	7.8 76	46.0F 7.8C	7.8 8.2	243	--	--	17 .74 34	--	95 1.90	--	5.7 .16	--	.10 45E	-- --		73		S
04/02/68 1455	5050 5050	2.71 98	10.6 111	52.0F 11.1C	8.2 8.5	266	--	--	10 .44 12	--	158 3.16	--	7.8 .22	--	.10 25E	-- --		168		S
05/07/68 1130	5050 5050	2.73 104	9.1 102	57 14 C	8.1 8.0	319	21 1.05 32	9.8 .81 24	30 1.31 39	6.4 .16 5	129 2.58 80	17 .35 11	10 .28 9	1.8 .03 1	.20 30E	-- --	204 174	93 0	1.4 2.2	
06/10/68 1330	5050 5050	3.07 220	8.3 104	67 F 19 C	8.1 8.4	320	--	--	29 1.26 38	--	146 2.92	--	5.0 .14	--	.40 35E	-- --		103		S

MINERAL ANALYSES OF SURFACE WATER

MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE; MILLIGRAMS PER LITER

A1 1680.00 PIT R NR CANBY A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/04/68 1000	5050 5050	2.49 48	7.4 99	73 F 23 C	8.4 8.7	340	--	--	31 1.35 40	--	155 3.10	--	7.8 .22	--	.10 35E	-- --		103		S
08/07/68 1235	5050 5050	2.74 107	7.7 102	72 22 C	7.9 7.9	289	--	--	29 1.26 41	--	130 2.60	--	6.5 .18	--	.10 25E	-- --		92		S
09/05/68 1200	5050 5050	2.42 29	8.0 99	66 19 C	8.2 8.2	368	23 1.15 31	10 .82 22	36 1.57 42	7.9 .20 5	155 3.10 86	13 .27 7	8.6 .24 7	.6 .01	.20 50E	-- --	235 192	101 0	1.6 2.7	
10/08/68 1110	5050 5050	2.56 52	10.0 104	51 11 C	8.1 8.1	324	--	--	33 1.44 41	--	149 2.98	--	7.1 .20	--	.20 94E	-- --		105		S
11/15/68 0950	5050 5050	2.79 116	11.9 98	35 2 C	8.0 8.5	356	--	--	35 1.52 42	--	156 3.12	--	9.4 .27	--	.10 45E	-- --		103		S
12/11/68 1130	5050 5050	2.96 178	11.6 96	35 2 C	7.8 7.8	273	--	--	30 1.31 45	--	114 2.28	--	7.4 .21	--	.10 500E	-- --		79		S
01/21/69 1510	5050 5050	6.71 2690	11.2 92	35 F 2 C	7.3 7.6	117	--	--	13 .57 43	--	43 .86	--	4.1 .12	--	.00 550E	-- --		38		S
02/18/69 1045	5050 5050	4.18 345	11.2 95	37 3 C	7.3 8.0	260	--	--	29 1.26 46	--	88 1.76	--	12 .34	--	.10 140E	-- --		75		S
03/11/69 1250	5050 5050	2.97 184	11.8 102	38 3 C	7.8 7.8	351	--	--	32 1.39 42	--	123 2.46	--	13 .37	--	.10 85E	-- --		97		S
04/09/69 1230	5050 5050	4.41 944	10.0 102	50 F 10 C	7.8 7.4	141	--	--	9.8 .43 31	--	58 1.16	--	2.5 .07	--	.00 45E	-- --		48		S
05/13/69 1330	5050 5050	4.49 1020 9	8.2 100	64 F 18 C	8.4 7.3	158	14 .70 42	4.9 .40 24	11 .48 29	3.0 .08 5	67 1.34 81	9.6 .20 12	3.6 .10 6	1.2 .02 1	.00 50E	-- --	134 87	55 0	0.6 0.7	E T
06/10/69 1030	5050 5050	2.92 167	8.4 99	61 F 16 C	7.9 7.5	240	--	--	22 .96 39	--	100 2.00	--	4.4 .12	--	.20 280E	-- --		76		S

MINERAL ANALYSES OF SURFACE WATER

AI 1680.00 PIT R NR CANBY

A2₃D₄ CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP		FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/08/69 1330	5050 5050	2.68 80	8.5 115	74 23	F C	8.2 8.1	230	--	--	20 .87 35	--	103 2.06	--	4.7 .13	--	.00 40E	-- --		82		S
08/13/69 1100	5050 5050	2.75 109	7.5 100	73 23	F C	7.9 8.0	236	--	--	19 .83 34	--	103 2.06	--	5.2 .15	--	.00 55E	-- --		80		S
09/16/69 1505	5050 5050	2.78 116	9.5 114	63 17	F C	8.1 8.3	262	20 1.00 35	6.6 .54 19	27 1.17 41	5.1 .13 5	121 2.42 89	7.2 .15 6	5.2 .15 6	.2 .00	.10 39E	-- --	153 144	77 0	1.3 2.0	
10/15/69 1210	5050 5050	3.80 123	10.2 98	45 7	F C	8.0 8.2	290	--	--	28 1.22 39	--	131 2.62	--	6.4 .18	--	.20 40E	-- --		94		S
11/19/69 1245	5050 5050	2.67 86	12.9 113	39 4	F C	8.4 7.7	292	--	--	31 1.35 44	--	128 2.56	--	9.0 .25	--	.20 50E	-- --		86		S
12/09/69 1120	5050 5050	2.65 83	12.9 101	32 0	F C	8.0 7.9	274	--	--	26 1.13 42	--	118 2.36	--	7.6 .21	--	.10 27E	-- --		79		S
01/13/70 1035	5050 5050	3.65 478	12.2 98	33 1	F C	7.5 7.1	166	--	--	17 .74 42	--	71 1.42	--	3.8 .11	--	.10 130F	-- --		52		S
02/10/70 1110	5050 5050	3.70 504	11.2 106	44 7	F C	7.6 7.5	209	--	--	20 .87 39	--	88 1.76	--	6.4 .18	--	.10 55E	-- --		68		S
03/10/70 1245	5050 5050	5.27 1540	11.2 104	43 6	 C	7.4 7.6	195	--	--	20 .87 42	--	69 1.38	--	6.8 .19	--	.10 130E	-- --		60		S
04/15/70 1045	5050 5050	3.12 235	11.3 107	44 7	 C	7.9 8.4	244	--	--	22 .96 38	--	99 1.98	--	5.0 .14	--	.10 45E	-- --		77		S
05/13/70 1355	5050 5050	4.17 792	10.5 106	49 9	F C	7.7 7.8	221	14 .70 31	9.1 .75 33	17 .74 32	4.0 .10 4	92 1.84 63	14 .29 13	2.0 .06 3	1.4 .02 1	.10 50E	-- --	150 117	73 0	0.9 1.2	T
06/17/70 1130	5050 5050	4.53 1030	8.1 101	66 19	F C	7.8 7.9	221	--	--	18 .78 35	--	101 2.02	--	3.5 .10	--	.20 30E	-- --		73		S

MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE; MILLIGRAMS PER LITER

MINERAL ANALYSES OF SURFACE WATER

MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE; MILLIGRAMS PER LITER

A1 1680.00 PIT R NR CANBY

A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/14/70 1215	5050 5050	2.52 37	11.6 157	74 F 23 C	8.4 7.8	218	--	--	19 .83 38	--	98 1.96	--	2.1 .06	--	.10 20E	-- --		67		S
08/04/70 0845	5050 5050	2.10 6.0	5.9 75	68 F 20 C	8.1 7.9	225	--	--	18 .78 34	--	107 2.14	--	3.4 .10	--	.10 10E	-- --		77		S
09/01/70 1030	5050 5050	2.61 71	9.5 117	65 F 18 C	8.4 7.9	262	--	--	24 1.04 37	--	117 2.34	--	5.8 .16	--	.20 30E	-- --		88		S
10/07/70 0815	5050 5050	2.63 76	9.8 96	47 8 C	8.1 8.1	280	21 1.05 37	6.2 .51 18	26 1.13 40	6.2 .16 6	126 2.52 87	8.1 .17 6	7.1 .20 7	.1 .00	.20 120E	-- --	182 150	78 0	1.3 1.9	
11/17/70 1145	5050 5050	2.94 169	10.8 98	41.0F 5.0C	7.5 7.8	274	--	--	26 1.13 37	--	119 2.38	--	7.9 .22	--	.10 30E	-- --		96		S
12/15/70 1200	5050 5050	3.06 225	12.5 101	33.8F 1.0C	7.5 7.6	289	--	--	26 1.13 39	--	115 2.30	--	9.0 .25	--	.10 45E	-- --		90		S
01/13/71 1515	5050 5050	3.04 217	11.2 88	32 0 C	7.1 7.7	263	--	--	25 1.09 40	--	108 2.16	--	8.2 .23	--	.20 30E	-- --		81		S
02/17/71 1635	5050 5050	3.32 329	11.6 104	40.6 4.8C	7.7 8.0	195	--	--	16 .70 34	--	80 1.60	--	6.1 .17	--	.10 40E	-- --		69		S
03/16/71 1120	5050 5050	4.46 959	10.5 91	38 F 3 C	7.4 7.7	241	--	--	27 1.17 47	--	88 1.76	--	9.3 .26	--	.20 160E	-- --		67		S
04/13/71 1600	5050 5050	4.41 926	9.5 96	49 9 C	7.5 7.6	142	--	--	8.7 .38 25	--	62 1.24	--	2.8 .08	--	.10 65E	-- --		58		S
05/11/71 1155	5050 5050	5.57 1680	9.6 110	59 F 15 C	7.5 7.7	154	--	--	10 .44 29	--	66 1.32	--	1.7 .05	--	.10 25E	-- --		53		S
06/03/71 1615	5050 5050	8.17 3660	8.3 96	59.9F 15.5C	7.2 7.3	148	11 .55 35	4.5 .37 24	13 .57 37	2.7 .07 4	60 1.20 85	6.6 .14 10	2.2 .06 4	1.4 .02 1	.20 80E	-- --	119 78	46 0	0.8 0.8	E T S

MINERAL ANALYSES OF SURFACE WATER

DATE	SAMPLER	G.H.	DO	TEMP	FIELD		MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE								MILLIGRAMS PER LITER					
TIME	LAB	Q DEPTH	SAT		LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
	A1	1680.00			PIT R NR CANBY							A23D4 CONTINUED								
07/07/71	5050	3.69	8.3	68 F	7.5		--	--	14	--	73	--	3.8	--	.10	--		62		
1220	5050	490	105	20 C	7.5	182			.61		1.46		.11		40E	--				
									33											S
09/05/71	5050	2.89	8.2	75 F	8.4		--	--	13	--	85	--	3.7	--	.10	--		65		
1500	5050	150	112	24 C	7.8	187			.57		1.70		.10		55E	--				
									30											S
09/22/71	5050	2.73	9.8	57 F	7.9		--	--	21	--	111	--	4.8	--	.20	--		88		
1110	5050	105	110	14 C	7.9	240			.91		2.22		.14		55E	--				
									34											S
10/12/71	5050	2.76	9.5	59.9F	7.9	236	19	7.9	19	4.8	105	8.6	4.8	1.0	.20	--	140	80	0.9	
1530	5050	114	110	15.5C	7.9	248	.95	.65	.83	.12	2.10	.18	.14	.02	40E	--	128	0	1.3	
							37	25	33	5	86	7	6	1						
11/17/71	5050	2.83	13.0	36.5F	8.1	238	--	--	--	--	--	--	--	--	--	--				
1300		133	110	2.5C											12E	--				
12/06/71	5050	2.93	12.0	35.6F	7.7	283	--	--	--	--	--	--	--	--	--	--				
1530		163	100	2.0C											22E	--				
01/05/72	5050		12.7	32.0F	7.5	262	--	--	--	--	--	--	--	--	--	--				
1245		97	100	0.0C											9E	--				
02/02/72	5050		11.0	32.4F	7.4	268	--	--	--	--	--	--	--	--	--	--				
1535		220	94	0.2C											23E	--				
03/07/72	5050	7.05	9.5	46.4F	7.3	144	--	--	12	--	57	--	3.6	--	.00	--		48		
1230	5050	2760	93	8.0C	7.2	137			.52		1.14		.10		62A	--				
									35											S
04/05/72	5050	4.02	9.5	51.8F	7.6	170	--	--	5.2	--	71	--	2.2	--	.00	--		58		
1600	5050	671	100	11.0C	7.7	171			.23		1.42		.06		26A	--				
									17											S
05/16/72	5050	3.11	7.7	59.0F	7.7	198	--	--	15	--	85	--	2.5	--	.10	--		67		
0745	5050	224	88	15.0C	7.8	193			.65		1.70		.07		16A	--				
									33											S
06/16/72	5050	3.16	7.3	70.7F	7.7	178	--	--	--	--	--	--	--	--	--	--				
0830		243	95	21.5C											27A	--				
																				S

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY

A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/18/72 0830	5050	2.34 18	6.6 87	72 F 22 C	8.0	211	--	--	--	--	--	--	--	--	-- 42A	-- --				S
08/10/72 0830	5050 5050	2.64 75	7.0 91	69.8 21.0C	7.6 7.3	 209	--	--	18 .78 33	--	92 1.84	--	5.6 .16	--	.20 40A	-- --		79		S
09/07/72 0815	5050	2.59 64	8.3 97	61 16 C	7.9	250	--	--	--	--	--	--	--	--	-- 35A	-- --				
10/11/72 0530	5050	2.69 85	8.3 87	52 F 11 C	7.5	317	--	--	--	--	--	--	--	--	-- 30A	-- --				
11/02/72 0815	5050 5050	2.70 87	11.0 94	37.4F 3.0C	8.0 7.9	288 296	--	--	33 1.44 46	--	129 2.58	--	8.2 .23	--	.20 11A	-- --		86		S
12/14/72 0830	5050 5050	2.61 51E		32.0F 0.0C	7.6	288	--	--	--	--	--	--	--	--	-- 2AF	-- --				
01/23/73 0845	5050 5050	2.66 128	11.7 92	32.0F 0.0C	7.5	253	--	--	--	--	--	--	--	--	-- 65AF	-- --				
02/20/73 1530	5050 5050	3.09 228	10.8 100	42.8F 6.0C	7.7	241	--	--	--	--	--	--	--	--	-- 8AF	-- --				
03/14/73 1305	5050 5050	3.41 365	9.3 82	39.2F 4.0C	7.5 7.5	 213	--	--	20 .87 40	--	88 1.76	--	4.7 .13	--	.00 38A	-- --		66		S
04/12/73 0845	5050 5050	3.49 405	8.1 84	50.9 10.5C	7.6	140	--	--	--	--	--	--	--	--	-- 75AF	-- --				
05/15/73 0730	5050 5050	3.59 440	7.5 89	61.7F 16.5C	7.4	175	--	--	--	--	--	--	--	--	-- 32AF	-- --				
06/13/73 1415	5050 5050	2.60 66	7.9 100	68.0F 20.0C	8.0	239	--	--	--	--	--	--	--	--	-- 28AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY

A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE						MILLIGRAMS PER LITER			
07/19/73 1045	5050 5050	2.32 14	9.7 127	70.7F 21.5C	8.8 8.3	252 257	--	--	23 1.00 38	--	115 2.30	--	3.3 .09	--	.10 33A	-- --		82		S
08/09/73 0805	5050 5050	2.39 27	7.8 96	65.3F 18.5C	8.0	262	--	--	--	--	--	--	--	--	-- 21AF	-- --				
09/06/73 0925	5050 5050	2.57 60	9.4 110	60.8F 16.0C	8.0	223	--	--	--	--	--	--	--	--	-- 28AF	-- --				
10/15/73 1500	5050 5050	2.91 156	11.4 125	55.4F 13.0C	8.0	327	--	--	--	--	--	--	--	--	-- 28AF	-- --				
11/14/73 0830	5050 5050	3.04 199	12.3 108	39.2F 4.0C	7.7 8.2	245 248	17 .85 33	7.7 .63 25	22 .96 38	4.3 .11 4	103 2.06 83	11 .23 9	5.7 .16 6	1.4 .02 1	.10 39A	-- --	170 131	74 0	1.1 1.6	T
12/05/73 1005	5050 5050	2.98 179	13.0 105	33.8F 1.0C	8.2 7.8	211 217	--	--	18 .78 37	--	90 1.80	--	3.9 .11	--	.10 24A	-- --		67		S
01/15/74 1150	5050 5050	4.93 1210	12.5 106	36.5F 2.5C	7.4 7.0	130 129	--	--	12 .52 40	--	48 .96	--	2.0 .06	--	.10 190A	-- --		39		S
02/05/74 1700	5050 5050	3.05 202	13.0 110	36.5F 2.5C	7.4	227	--	--	--	--	--	--	--	--	-- 20AF	-- --				S
03/14/74 0715	5050 5050	 1680	10.6 96	41.0 5.0C	7.4	146	--	--	--	--	--	--	--	--	-- 150AF	-- --				S
04/17/74 0730	5050 5050	 420	9.6 101	51.8F 11.0C	7.6	156	--	--	--	--	--	--	--	--	-- 25AF	-- --				S
05/08/74 1335	5050 5050	3.68 485	8.8 108	65.3 18.5C	7.6 7.3	 143	--	--	9.4 .41 28	--	64 1.28	--	.0 .00	--	.10 24A	-- --		53		S
06/06/74 0650	5050	2.92 159	7.4 84	58.1F 14.5C	7.6	221	--	--	--	--	--	--	--	--	-- 16AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MG	NA	K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/17/74 1205	5050	2.81 125	10.6 137	69.0F 21.0C	8.1	195	--	--	--	--	--	--	--	--	-- 25AF	-- --				
08/15/74 0645	5050	2.49 40	6.7 78	60.8F 16.0C	7.8	267	--	--	--	--	--	--	--	--	-- 15AF	-- --				
09/12/74 0725	5050	2.69 92	7.2 83	59.0F 15.0C	8.0	263	--	--	--	--	--	--	--	--	-- 3AF	-- --				
10/08/74 1530	5050	2.53 53	10.0 115	59.0F 15.0C	8.2	293	--	--	--	--	--	--	--	--	-- 32AF	-- --				
11/07/74 0810	5050	2.72 103	11.1 100	41.0F 5.0C	7.9	303	--	--	--	--	--	--	--	--	-- 114AF	-- --				
12/10/74 0745	5050	2.69 95	11.4 95	35.6F 2.0C	8.1	236	--	--	--	--	--	--	--	--	-- 11AF	-- --				
01/14/75 0930	5050	2.74 108	11.0 86	32.0F 0.0C	7.4	308	--	--	--	--	--	--	--	--	-- 10AF	-- --				
02/12/75 1630	5050	 279	11.0 90	34.7F 1.5C	7.6	268	--	--	--	--	--	--	--	--	-- 25AF	-- --				
03/19/75 1320	5050 5050	3.52 405	10.1 96	44.6F 7.0C	7.7 7.8	182 192	--	--	15 .65 33	--	80 1.60	--	5.7 .16	--	.00 50A	-- --		67		S
04/15/75 1700	5050	3.69 1190	9.8 96	46.4 8.0C	7.6	148	--	--	--	--	--	--	--	--	-- 70AF	-- --				
05/06/75 1400	5050 5050	4.31 836	10.3 103	48.2F 9.0C	7.6 7.6	 145	--	--	9.5 .41 28	--	63 1.26	--	2.4 .07	--	.10 26A	-- --		53		S
06/03/75 1630	5050	4.20 770	7.0 91	70.7F 21.5C	7.6	141	--	--	--	--	--	--	--	--	-- 22AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE — MILLIGRAMS PER LITER

A1 1680.00 PIT R NR CANBY A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/16/75 0825	5050	2.61 75	7.2 91	68.0F 20.0C	8.2	215	--	--	--	--	--	--	--	--	-- 3AF	-- --				
08/07/75 0650	5050	2.55 62	6.3 74	60.8F 16.0C	7.9	252	--	--	--	--	--	--	--	--	-- 15AF	-- --				
09/17/75 0710	5050	2.77 117	7.3 84	59.0F 15.0C	8.0	243	--	--	--	--	--	--	--	--	-- 19AF	-- --				
10/15/75 1530	5050	2.82 130	10.7 117	55.4 13.0C	8.1	293	--	--	--	--	--	--	--	--	-- 16AF	-- --				
11/05/75 0740	5050	2.55 61	9.8 94	45.0F 7.2C	8.1	315	--	--	--	--	--	--	--	--	-- 11AF	-- --				
12/02/75 0730	5050	2.87 144	11.2 91	33.8F 1.0C	7.9	254	--	--	--	--	--	--	--	--	-- 14AF	-- --				
01/06/76 1600	5050 5050	2.73 105	12.1 101	35.6F 2.0C	8.0 8.3	322 320	--	--	.33 1.44 45	--	130 2.60	--	15 .42	--	.20 7A	-- --		88		S
02/03/76 1600	5050	2.62 77	11.2 104	42.8 6.0C	8.2	256	--	--	--	--	--	--	--	--	-- 17AF	-- --				S
03/10/76 1415	5050	3.01 188	9.7 97	48.2F 9.0C	7.8	338	--	--	--	--	--	--	--	--	-- 45AF	-- --				S
04/13/76 1645	5050	2.88 147	10.1 108	53.6F 12.0C	8.1	219	--	--	--	--	--	--	--	--	-- 21AF	-- --				S
05/12/76 1300	5050 5050	3.27 285	8.2 103	67.1 19.5C	7.8 7.8	184 192	--	--	16 .70 35	--	85 1.70	--	4.4 .12	--	.00 25A	-- --		64		S
06/02/76 1545	5050	2.40 32	9.9 121	64.4 18.0C	8.2	269	--	--	--	--	--	--	--	--	-- 28AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE								MILLIGRAMS PER LITER					
07/07/76	5050	2.20	5.1	64.4F	8.2	300	--	--	--	--	--	--	--	--	--	--				
0730		8.0	62	18.0C											18AF	--				
08/10/76	5050	2.75	9.9	75.2F	8.2	260	--	--	--	--	--	--	--	--	--	--				
1445		108	136	24.0C											9AF	--				
09/01/76	5050	2.43	10.4	73.4F	8.4	252	--	--	--	--	--	--	--	--	--	--				
1430		34	140	23.0C											10AF	--				
10/13/76	5050	2.56	11.0	58.1F	8.4	290	--	--	--	--	--	--	--	--	--	--				
1415		68	125	14.5C											21AF	--				
11/08/76	5050	2.55	11.7	46.9F	8.3	282	--	--	--	--	--	--	--	--	--	--				
1425		66	115	8.3C											16AF	--				
12/06/76	5050	2.79	12.9	34.0F	8.4	332	--	--	--	--	--	--	--	--	--	--				
1350		128	105	1.1C											15AF	--				
01/05/77	5050	2.63	11.9	32.0F	7.8	285	--	--	--	--	--	--	--	--	--	--				
1600		56	94	0.0C											11AF	--				
02/02/77	5050	2.52	12.7	35.6F	7.8	277	--	--	--	--	--	--	--	--	--	--				
1545	5050	62	106	2.0C											10AF	--				
03/02/77	5050	2.60	12.0	37.4F	8.2	318	--	--	--	--	--	--	--	--	--	--				
1230	5050	73	103	3.0C											37AF	--				
04/14/77	5050	2.04	8.1	51.8F	8.2	290	--	--	--	--	--	--	--	--	--	--				
0745	5050	3.0	85	11.0C											15AF	--				
05/10/77	5050	2.87	9.6	51.8F	8.4	350	--	--	38	--	146	--	10	--	.30	--		101		
1445	5050	150	101	11.0C	7.6	350			1.65		2.92		.28		27A	--				
									45											S
06/02/77	5050					319	--	--	--	--	--	--	--	--	--	--				
	5050														18AF	--				

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CA	MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
06/02/77 1515	5050 5050		10.4 139	73.0F 22.8C	8.5	324	--	--	--	--	135 2.70	16 .34	8.0 .23	--	-- 4AF	-- --				S
06/07/77 1445	5050 5050	2.29 19	8.0 107	72.5F 22.5C	8.1	287	--	--	--	--	--	--	--	--	-- 35AF	-- --				
07/05/77 1445	5050	2.52 53	11.3 152	73.4F 23.0C	8.4	364	--	--	--	--	--	--	--	--	-- 12AF	-- --				
07/12/77 1115	5050 5050	25E	8.3 104	67.0F 19.4C	8.4	340 342	--	--	--	--	--	--	--	--	-- 17AF	-- --				
07/12/77 1515	5050 5050		8.6 116	73.0F 22.8C	8.4	320	--	--	--	--	--	--	--	--	-- 15AF	-- --				
07/12/77 1900	5050 5050		9.1 124	75.0F 23.9C	8.3	325	--	--	--	--	--	--	--	--	-- 16AF	-- --				
07/12/77 2210	5050 5050		6.6 87	71.1F 21.7C	8.4	333	--	--	--	--	--	--	--	--	-- 17AF	-- --				
07/13/77 0210	5050 5050		5.4 70	69.1F 20.6C	8.3	328	--	--	--	--	--	--	--	--	-- 18AF	-- --				
07/13/77 0710	5050 5050		4.9 61	66.0F 18.9C	8.1	327	--	--	--	--	--	--	--	--	-- 18AF	-- --				
07/13/77 1015	5050 5050		8.0 103	69.1F 20.6C	8.3	338	--	--	--	--	--	--	--	--	-- 18AF	-- --				
07/13/77 1420	5050 5050		10.6 151	79.0F 26.1C	7.9	344	--	--	--	--	--	--	--	--	-- 18AF	-- --				
07/13/77 1955	5050 5050		8.9 120	74.0 23.3C	8.2 8.5	319	--	--	--	--	149 2.98	15 .32	--	--	-- 16AF	-- --				S

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY

A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/14/77 0200	5050 5050		5.9 77	70.0F 21.1C	8.4 7.9	324	--	--	--	--	--	--	--	--	-- 23AF	-- --				
07/14/77 0635	5050 5050		5.6 70	67.0F 19.4C	7.7 8.3	332	--	--	--	--	149 2.98	--	--	--	-- 23AF	-- --				S
07/14/77 0900.	5050 5050	15E	5.6 70	67.0 19.4C	7.7	335	--	--	--	--	--	--	--	--	--	-- --				
07/14/77 0945	5050 5050	15E		67.0F 19.4C	7.7	300	--	--	--	--	--	--	--	--	--	-- --				
07/27/77 1600	5050 5050		8.4 114	74.5F 23.6C	8.9	246	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/02/77 1445	5050 5050	2.33 19	12.7 180	78.8F 26.0C	8.4	268	--	--	--	--	--	--	--	--	-- 9AF	-- --				
08/24/77 0520	5050 5050		6.0 73	64.0F 17.8C	8.6 7.8	270	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/24/77 0900	5050 5050		6.1 74	64.0F 17.8C	7.8 7.7	272	--	--	--	--	--	--	--	--	-- 8AF	-- --				
08/24/77 1240	5050 5050		[illegible].4 107	68.0F 20.0C	8.4 7.8	270	--	--	--	--	142 2.84	--	--	--	-- 8AF	-- --				S
08/24/77 1700	5050 5050	15E	9.3 114	65.0F 18.3C	8.2 8.2	258	--	--	--	--	--	--	--	--	-- 8AF	-- --				
08/24/77 2140	5050 5050		8.2 98	63.0F 17.2C	8.0 7.7	286	--	--	--	--	--	--	--	--	-- 10AF	-- --				
08/25/77 0150	5050 5050		6.8 80	61.0F 16.1C	7.9 8.2	289 283	--	--	23 1.00 28	--	130 2.60	--	5.4 .15	--	.10 7A	-- --		126		S

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY A23O4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
08/25/77 1100	5050 5050			59.0F 15.0C		271	--	--	--	--	--	--	--	--	-- 8AF	-- --				S
09/14/77 1145	5050 5050	2.33 21	9.2 116	67.1F 19.5C	8.4	301	--	--	--	--	--	--	--	--	-- 10AF	-- --				S
09/27/77 1300	5050 5050		9.2 105	59.0F 15.0C	 8.2	291	--	--	--	--	134 2.68	--	--	--	-- 16AF	-- --				S
09/28/77 0800	5050 5050				 8.0	301	--	--	--	--	--	--	--	--	-- 15AF	-- --				S
09/28/77 0900	5050 5050				 8.1	298	--	--	--	--	--	--	--	--	-- 10AF	-- --				S
09/28/77 1000	5050 5050				 8.0	290	--	--	--	--	--	--	--	--	-- 15AF	-- --				S
09/28/77 1100	5050 5050				 8.1	295	--	--	--	--	--	--	--	--	-- 15AF	-- --				S
09/28/77 1200	5050 5050				 8.1	300	--	--	--	--	--	--	--	--	-- 15AF	-- --				S
09/28/77 1300	5050 5050				 8.2	298	--	--	--	--	--	--	--	--	-- 15AF	-- --				S
09/28/77 1400	5050 5050				 8.2	298	--	--	--	--	--	--	--	--	-- 15AF	-- --				S
09/28/77 1500	5050 5050					292	--	--	--	--	--	--	--	--	-- 10AF	-- --				S
09/28/77 1501	5050 5050	 20E	8.5 97	59.0F 15.0C	7.7	290	--	--	--	--	--	--	--	--	-- 9AF	-- --				S

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                                             MINERAL ANALYSES OF SURFACE WATER

 DATE    SAMPLER  G.H.   DO    TEMP   FIELD                               MILLIGRAMS PER LITER       MILLIGRAMS PER LITER
 TIME     LAB     Q     SAT          LABORATORY   MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                 DEPTH                PH    EC                            PERCENT REACTANCE VALUE     R   F    TDS    TH   SAR    REM
                                                 CA    MG    NA    K     CACO3     SO4   CL   NO3  TURB SIO2    SUM   NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              A1  1680.00         PIT R NR CANBY                                 A23D4 CONTINUED

09/28/77  5050                             293    --    --    --    --     --        --    --  --    --    --
  1600    5050                                                                                     15AF    --
                                                                                                                                     S

09/28/77  5050                             300    --    --    --    --     --        --    --  --    --    --
  1700    5050                       8.3                                                           15AF    --
                                                                                                                                     S

09/28/77  5050                             300    --    --    --    --     --        --    --  --    --    --
  1600    5050                       8.2                                                           18AF    --
                                                                                                                                     S

09/28/77  5050                             296    --    --    --    --     --        --    --  --    --    --
  1900    5050                       8.3                                                           17AF    --
                                                                                                                                     S

09/28/77  5050                             300    --    --    --    --     --        --    --  --    --    --
  2100    5050                       8.3                                                           15AF    --
                                                                                                                                     S

09/28/77  5050                             300    --    --    --    --     --        --    --  --    --    --
  2200    5050                       8.2                                                           16AF    --
                                                                                                                                     S

09/28/77  5050                             306    --    --    --    --     --        --    --  --    --    --
  2300    5050                       8.2                                                           19AF    --
                                                                                                                                     S

09/28/77  5050                             307    --    --    --    --     --        --    --  --    --    --
  2359    5050                       8.2                                                           18AF    --
                                                                                                                                     S

09/29/77  5050                             309    --    --    --    --     --        --    --  --    --    --
  0200    5050                       8.1                                                           19AF    --
                                                                                                                                     S

09/29/77  5050                             309    --    --    --    --     --        --    --  --    --    --
  0300    5050                       8.1                                                           19AF    --
                                                                                                                                     S

09/29/77  5050                             313    --    --    --    --     --        --    --  --    --    --
  0400    5050                       8.2                                                           18AF    --
                                                                                                                                     S

10/04/77  5050    2.55  10.8  62.6F  8.4   314    --    --    --    --     --        --    --  --    --    --
  1500    5050      61   129  17.0C                                                                18AF    --
                                                                                                                                     S
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MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY A2$_3$D$_4$ CONTINUED

							MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE										MILLIGRAMS PER LITER			
DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
10/04/77 1600	5050 5050		10.0 116	60.0F 15.5C	8.4		--	--	--	--	--	--	--	--	-- 2AF	-- --				S
11/14/77 1530	5050 5050	2.52 55	11.2 107	44.6F 7.0C	8.3	332	--	--	--	--	--	--	--	--	-- 15AF	-- --				S
12/05/77 1450	5050	2.56 64	11.6 108	42.8F 6.0C	8.2	301	--	--	--	--	--	--	--	--	-- 15AF	-- --				S
12/20/77	5050 5050					300	--	--	--	--	--	--	--	--	-- 38AF	-- --				S
01/03/78 1600	5050 5050	2.81 136	11.1 96	28.3 3.5C	8.1	257	--	--	--	--	--	--	--	--	-- 34AF	-- --				S
02/06/78 1600	5050 5050	2.70 107	10.0 92	41.9F 5.5C	8.1	288	--	--	--	--	--	--	--	--	-- 16AF	-- --				S
03/13/78 1605	5050 5050	3.02 198	10.2 100	46.4 8.0C	7.9	239	--	--	--	--	--	--	--	--	-- 30AF	-- --				S
03/14/78 1350	5050 5050					259	--	--	--	--	--	--	--	--	-- 33AF	-- --				S
04/11/78 1530	5050 5050	 400E	8.2 95	59.9F 15.5C	7.9	193	--	--	--	--	80 1.60	--	--	--	-- 37AF	-- --				S
04/12/78 1415	5050 5050	3.56 423	8.3 95	59.0F 15.0C	7.6	186	--	--	--	--	--	--	--	--	-- 33AF	-- --				S
05/02/78 1515	5050 5050	4.58 1010	8.2 94	59.0 15.0C	7.4	180	--	--	--	--	--	--	--	--	-- 37AF	-- --				S
05/22/78 1430	5050		8.2 98	63.0F 17.2C	7.6	183	--	--	--	--	--	--	--	--	--	-- --				S

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY

A2$_3$D$_4$ CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
06/13/78 1500	5050 5050	2.49 48	9.4 122	69.8F 21.0C	8.2	249	--	--	--	--	--	--	--	--	-- 13AF	-- --				S
06/28/78 0615	5050 5050		7.1 85	63.0 17.2C	8.0 8.2	301	--	--	--	--	--	--	--	--	-- 12AF	-- --				S
06/28/78 1000	5050 5050		7.6 93	64.9F 18.3C	8.2 8.2	296	--	--	32 1.39 43	--	128 2.56	--	8.9 .25	--	.20 13AF	-- --		91		S
06/28/78 1505	5050 5050		8.7 109	67.0 19.4C	8.2	283	--	--	--	--	--	--	--	--	-- 2AF	-- --				
06/28/78 1930	5050 5050		7.6 92	64.0F 17.8C	8.0	287	--	--	--	--	--	--	--	--	-- 14AF	-- --				
06/28/78 2200	5050 5050		6.6 79	62.5F 16.9C	7.9	282	--	--	--	--	--	--	--	--	-- 15AF	-- --				
06/29/78 0215	5050 5050		6.6 79	62.5 16.9C	7.9	272	--	--	--	--	--	--	--	--	-- 14AF	-- --				
07/06/78 1325	5050 5050	2.79 125	9.8 134	75.2F 24.0C	8.3	218	--	--	--	--	--	--	--	--	-- 6AF	-- --				
07/11/78 1400	5050 5050		9.8 137	77.0F 25.0C	8.9		--	--	--	--	--	--	--	--	--	-- --				
07/27/78	5050 5050				8.8	246	--	--	--	--	--	--	--	--	-- 11AF	-- --				
08/02/78 0605	5050 5050		5.7 72	68.0F 20.0C	7.8	219	--	--	--	--	--	--	--	--	-- 5AF	-- --				
08/02/78 1035	5050 5050		8.5 115	74.0F 23.3C	8.4 8.2	228	--	--	19 .83 38	--	116 2.32	--	1.4 .04	--	.00 6AF	-- --		67		S

MINERAL ANALYSES OF SURFACE WATER

MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE; MILLIGRAMS PER LITER

A1 1680.00 PIT R NR CANBY A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
08/02/78 1420	5050 5050		9.2 133	81.0F 27.2C	8.2	234	--	--	--	--	--	--	--	--	-- 5AF	-- --				
08/02/78 1945	5050 5050		7.1 95	73.0F 22.8C	8.4	223	--	--	--	--	--	--	--	--	-- 6AF	-- --				
08/02/78 2220	5050 5050		6.1 82	73.0F 22.8C	8.4	227	--	--	--	--	--	--	--	--	-- 6AF	-- --				
08/03/78 0230	5050 5050		5.2 67	70.0F 21.1C	8.3	218	--	--	--	--	--	--	--	--	-- 7AF	-- --				
08/10/78 1500	5050 5050	2.51 41	9.9 141	78.8F 26.0C	8.2	246	--	--	--	--	--	--	--	--	-- 4AF	-- --				
09/06/78 1245	5050 5050	2.57 68	9.6 117	64.4F 18.0C	8.4 8.1	243 251	--	--	22 .96 37	--	116 2.32	--	5.6 .16	--	.00 11A	-- --		82		S
10/11/78 1445	5050 5050	2.29 20	10.3 122	61.7 16.5C	8.3	283	--	--	--	--	--	--	--	--	-- 14AF	-- --				
10/18/78 1200	5050			58.0F 14.4C		290	--	--	--	--	--	--	--	--	--	-- --				
10/26/78 0830	5050 5050	 50E	10.4 104	48.2F 9.0C	8.0	368	--	--	--	--	--	--	--	--	--	-- --				
11/14/78 1545	5050 5050	2.54 73	12.1 102	36.5F 2.5C	8.2	305	--	--	--	--	--	--	--	--	-- 18AF	-- --				
12/14/78 1515	5050 5050	2.74 114	12.0 99	34.7F 1.5C	7.6	281	--	--	--	--	--	--	--	--	-- 16AF	-- --				
01/04/79 1245	5050 5050	2.41 26	12.5 104	35.6F 2.0C	7.8	316	--	--	--	--	--	--	--	--	-- 11AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
02/05/79 1340	5050 5050	2.52 66	12.5 100	33.0F 0.6C	7.7	283	--	--	--	--	--	--	--	--	-- 10AF	-- --				
03/07/79 1555	5050 5050	4.36 890	9.4 94	48.2F 9.0C	7.5	232	--	--	--	--	--	--	--	--	-- 110AF	-- --				
04/05/79	5050 5050	 450E	9.7 106	55.4F 13.0C	8.1		--	--	--	--	--	--	--	--	--	-- --				
04/11/79 1410	5050 5050	3.21 267	10.6 102	45.5F 7.5C	8.0	202	--	--	--	--	--	--	--	--	-- 21AF	-- --				
05/02/79 1245	5050 5050	3.42 390	9.4 105	57.2F 14.0C	7.8	165	--	--	--	--	--	--	--	--	-- 25AF	-- --				
05/14/79 1600	5050 5050		8.2 108	71.1F 21.7C	8.0	189	--	--	--	--	--	--	--	--	-- 14AF	-- --				
05/14/79 1955	5050 5050		8.3 104	66.9F 19.4C	8.1	189	--	--	--	--	--	--	--	--	-- 24AF	-- --				
05/15/79 0005	5050 5050		6.9 84	64.4F 18.0C	8.1	200 196	--	--	--	--	--	--	--	--	-- 14AF	-- --				
05/15/79 0405	5050 5050		6.9 82	62.6F 17.0C	7.9 7.6	200 194	--	--	--	--	83 1.66	--	--	--	-- 23AF	-- --				S
05/15/79 0755	5050 5050		7.3 88	63.5 17.5C	7.5	189	--	--	--	--	--	--	--	--	-- 17AF	-- --				S
05/15/79 1150	5050 5050		7.3 92	67.1 19.5C	7.5 7.7	183	--	--	--	--	89 1.78	--	--	--	-- 19AF	-- --				S
05/16/79 1000	5050 5050	 200E	7.3 89	64.0F 17.8C	7.5	190	--	--	--	--	--	--	--	--	--	-- --				S

Column headings: MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE; MILLIGRAMS PER LITER

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY

A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CA	MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
06/12/79	5050	2.17	8.7	70.7F	8.4	260	--	--	--	--	--	--	--	--	--	--				
1405	5050	11	114	21.5C											11AF	--				S
06/25/79	5050		8.7	75.2F	8.0	260	--	--	--	--	--	--	.9	--	--	--				
1300	5050	40E	119	24.0C		261							.03		7AF	--				S
06/25/79	5050		8.9	75.2	8.3	255	--	--	--	--	119	--	1.0	--	--	--				
1650	5050		122	24.0C	8.2	262					2.38		.03		7AF	--				S
06/25/79	5050		7.8	72.5	8.6	260	--	--	--	--	--	--	1.0	--	--	--				
2045	5050		104	22.5C		250							.03		10AF	--				S
06/26/79	5050		6.1	68.9F	8.1	260	--	--	--	--	--	--	.7	--	--	--				
0100	5050		78	20.5C		264							.02		5AF	--				S
06/26/79	5050		3.6	66.2	7.3	250	--	--	--	--	116	--	.8	--	--	--				
0500	5050		45	19.0C	7.8	264					2.32		.02		10AF	--				S
06/26/79	5050		8.8	72.5F	8.3	265	--	--	--	--	--	--	.8	--	--	--				
0935	5050		117	22.5C		263							.02		7AF	--				
07/17/79	5050	2.39	9.9	77.0F	9.0	265	--	--	--	--	--	--	--	--	--	--				
1405	5050	35	138	25.0C											6AF	--				S
07/26/79	5050			76.1F		256	--	--	--	--	--	--	--	--	--	--				
1145	5050			24.5C												--				S
08/14/79	5050	2.49	10.2	68.9F	8.7	278	--	--	--	--	--	--	--	--	--	--				
1405	5050	49	131	20.5C											4AF	--				S
08/15/79	5050		8.9	64.4F	8.6	265	--	--	--	--	--	--	--	--	--	--				
1000	5050		109	18.0C		269									3AF	--				S
08/15/79	5050		10.2	71.1F	8.8	265	--	--	--	--	--	--	--	--	--	--				
1350	5050		134	21.7C		268									4AF	--				

MINERAL ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY A23D4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CA	MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
08/15/79	5050		8.0	68.9F	8.6	280	--	--	--	--	106	--	1.0	--	--	--				
1805	5050		103	20.5C	7.6	275					2.12		.03		6AF	--				S
08/15/79	5050		6.8	64.2F	8.4	270	--	--	--	--	--	--	--	--	--	--				
2210	5050		83	17.9C		269									7AF	--				S
08/16/79	5050		6.3	63.3	8.3	250	--	--	--	--	104	--	1.1	--	--	--				
0205	5050		76	17.4C	7.8	267					2.08		.03		5AF	--				S
08/16/79	5050		6.2	59.7	7.9	255	--	--	--	--	--	--	--	--	--	--				
0605	5050		72	15.4C		267									5AF	--				
08/16/79	5050		8.8	67.1F	8.6	260	--	--	21	--	125	--	4.0	--	.10	--		93		
1200	5050		111	19.5C	8.2	264			.91 33		2.50		.11		8AF	--				S
09/12/79	5050	2.45	7.8	62.6	8.6	278	--	--	--	--	--	--	--	--	--	--				
1005	5050	35	93	17.0C											10AF	--				
09/17/79	5050					290	--	--	--	--	--	--	--	--	--	--				
	5050														2AF	--				
10/11/79	5050	2.41	10.3	60.8F	8.6	327	--	--	--	--	--	--	--	--	--	--				
1420	5050	29	121	16.0C											14AF	--				
10/22/79	5050		9.3	46.0	8.0	370	--	--	--	--	--	--	--	--	--	--				
1005	5050		90	7.8C		375									17AF	--				
10/22/79	5050		9.4	46.8F	8.3	370	--	--	--	--	--	--	--	--	--	--				
1405	5050		92	8.2C		375									17AF	--				
10/22/79	5050		9.3	47.1F	8.3	390	--	--	--	--	--	--	--	--	--	--				
1615	5050		92	8.4C		359									18AF	--				
10/22/79	5050		9.2	46.8F	8.1	380	--	--	--	--	--	--	--	--	--	--				
2200	5050		90	8.2C		350									19AF	--				S

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                                                MINERAL ANALYSES OF SURFACE WATER

 DATE      SAMPLER  G.H.    DO     TEMP    FIELD                                   MILLIGRAMS PER LITER          MILLIGRAMS PER LITER
 TIME       LAB     Q       SAT           LABORATORY   MINERAL CONSTITUENTS IN     MILLIEQUIVALENTS PER LITER
                    DEPTH                  PH     EC                               PERCENT REACTANCE VALUE      B      F       TDS      TH      SAR      REM
                                                        CA      MG      NA      K      CACO3     SO4     CL    NO3   TURB   SIO2     SUM      NCH     ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                 A1  1680.00           PIT R NR CANBY                                   A23D4 CONTINUED

10/23/79   5050             9.2   47.3F   8.1    355    --      --      --      --      --       --      --    --     --     --
 0405      5050             91     8.5C          341                                                                  20AF    --
                                                                                                                                                  S

10/23/79   5050             9.7   47.3    8.1    350    --      --      32      --      137      --      10    --     .20    --               91
 0630      5050     80E     96     8.5C   8.0    348                    1.39            2.74             .28          19AF    --
                                                                        43                                                                        S

10/24/79   5050                   48.2           349    --      --      --      --      146      --      --    --     --     --
 0800      5050                    9.0C   8.0                                           2.92                          20AF    --
                                                                                                                                                  S

11/14/79   5050     2.56    12.5  42.8F   8.2    303    21      9.0     30      --      132      --      8.0   --     .20    --               90      1.4
 1235      5050      63     116    6.0C   8.4    308   1.05     .74    1.31             2.64             .23          12A     --                0      2.2
                                                        34      24      42                                                                        S

12/05/79   5050     3.01    11.2  41.0    8.4    275    --      --      --      --      --       --      --    --     --     --
 1430      5050     201     101    5.0C                                                                               30AF    --

01/08/80   5050     3.32    10.9  37.4F   7.5    199    13      6.0     18     3.2      73       --      4.0   --     .20    --               57      1.0
 1225      5050     316      93    3.0C   8.0    197   .65     .49     .78     .08     1.46             .11          100A    --                0      1.2
                                                        33      25      39      4                                                                 S

01/17/80   5050     7.90     9.4  40.1    7.2    160    10      4.0     15     3.8      54       --      4.0   --     .10    --               42      1.0
 1210      5050    3500E     84    4.5C   7.8    192   .50     .33     .65     .10     1.08             .11          160A    --                0      0.9
                                                        32      21      41      6                                                                 S

02/14/80   5050     3.07    10.4  42.8F   7.8    287    21      8.0     26     3.8     108       --      9.0   --     .10    --               86      1.2
 1455      5050     217      97    6.0C   8.1    281   1.05     .66    1.13     .10     2.16             .25          25A     --                0      1.8
                                                        36      22      38      3                                                                 S

03/12/80   5050     3.41    10.6  44.6F   7.7    207    --      --      --      --      --       --      --    --     --     --
 1400      5050     347     101    7.0C                                                                               29AF    --
                                                                                                                                                  S

04/16/80   5050     3.32     9.4  60.8F   8.2    171    --      --      --      --      --       --      --    --     --     --
 1450      5050     312     110   16.0C                                                                                       --
                                                                                                                                                  S

05/07/80   5050     3.59     8.8  61.7F   7.7    154    --      --      --      --      --       --      --    --     --     --
 1305      5050             104   16.5C                                                                               21AF    --
                                                                                                                                                  S

06/11/80   5050     3.26     8.3  67.1F   8.2    213    --      --      --      --      --       --      --    --     --     --
 1445      5050             104   19.5C                                                                               14AF    --
                                                                                                                                                  S
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                                                MINERAL ANALYSES OF SURFACE WATER

 DATE     SAMPLER  G.H.   DO      TEMP   FIELD                                  MILLIGRAMS PER LITER           MILLIGRAMS PER LITER
 TIME     LAB      Q      SAT            LABORATORY   MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                   DEPTH                  PH    EC                              PERCENT REACTANCE VALUE       B     F      TDS    TH    SAR     REM
                                                       CA    MG    NA    K     CACO3      SO4   CL   NO3  TURB  SIO2     SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

               A1  1680.00          PIT R NR CANBY                                    A23D4 CONTINUED

 07/17/80  5050    2.56   8.7  77.9F  8.7   216    --    --    --    --     --        --    --   --    --    --
   1235    5050           122  25.5C                                                                  14AF   --
                                                                                                                                            S
 08/13/80  5050    2.59   8.9  76.1   8.6   204    --    --    --    --     --        --    --   --    --    --
   1345    5050           123  24.5C                                                                  14AF   --
                                                                                                                                            S
 09/03/80  5050    2.62   9.5  71.6   8.3   242    --    --    --    --     --        --    --   --    --    --
   1505    5050           125  22.0C                                                                  16AF   --
                                                                                                                                            S
 10/15/80  5050    2.79   9.6  48.2   8.2   228    --    --    --    --     --        --    --   --    --    --
   1200    5050            96   9.0C                                                                  21AF   --
                                                                                                                                            S
 11/04/80  5050    2.66  11.5  50.9   8.5   263    --    --    --    --     --        --    --   --    --    --
   1540    5050           119  10.5C                                                                  18AF   --
                                                                                                                                            S
 12/09/80  5050    2.82  12.6  34.7   8.2   320    --    --    --    --     --        --    --   --    --    --
   1355    5050           104   1.5C                                                                  28AF   --
                                                                                                                                            S
 01/06/81  5050    2.67  10.2  39.2   8.0   307    --    --    --    --     --        --    --   --    --    --
   1355    5050            90   4.0C                                                                  15AF   --
                                                                                                                                            S
 02/03/81  5050    2.46  12.0  34.7   7.9   358    --    --    --    --     --        --    --   --    --    --
   1310    5050            99   1.5C                                                                  34AF   --
                                                                                                                                            S
 03/04/81  5050    2.74  10.2  45.5   8.2   307    21   9.0    29   4.5    119        --   9.0   --   .20    --             90    1.3
   1540    5050            98   7.5C  8.1   299  1.05   .74  1.26   .12   2.38             .25        25A    --              0    2.1
                                                   33    23    40     4                                                                     S
               A1  1701.00          TURNER C A MO                                   A23D4

 06/03/77  5050          10.4  59.9F  8.3   276    --    --    --    --     --        --    --   --    --    --
   0735    5050     2E    120  15.5C                                                                   0AF   --
                                                                                                                                            S
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                                           MINERAL ANALYSES OF SURFACE WATER

 DATE     SAMPLER  G.H.    DO     TEMP   FIELD                                 MILLIGRAMS PER LITER       MILLIGRAMS PER LITER
 TIME     LAB       Q      SAT          LABORATORY   MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                  DEPTH                   PH    EC                             PERCENT REACTANCE VALUE      B     F       TDS     TH    SAR     REM
                                                     CA     MG     NA     K      CACO3      SO4    CL    NO3  TURB  SIO2     SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

               A1  1705.00        KELLY HOT SPR NR CANBY                           A23E1

09/26/62  5050                                        16    2.9    284    6.6      43       290    169    4.0  2.00   2.0     891     52  17.1     E
 1100     5000      2E                   7.7  1260   .80   .24  12.35   .17     .86      6.04   4.77   .06   0E   99.9     900      9  12.9
                                                      6      2     91      1      7        51     41     1                                        S

06/02/77  5050                                 1344   --    --     --     --      --        --     --     --    --    --
 1600     5050                                                                                              1AF   --

               A1  1725.00        CANYON C A BR ON CENTERVILLE RD                  A23E1

11/17/59  5050             9.0  33.0F                18    6.8     11    2.8      93       2.0    3.1    1.1   .00    .1              73   0.6
 0700     5050      1E      72   0.6C    7.8   198   .90   .56    .48   .07    1.86       .04    .09    .02        33.0     134      0   0.8
                                                     45     28     24      3      93         2      4      1

06/02/77  5050             8.7  68.0F    8.4   370    --    --     --     --      --        --     --     --    --    --
 1415     5050             111  20.0C                                                                       1AF   --

               A1  1751.00        PIT R A COU RD 70                                A23E1

06/02/77  5050            11.2  70.0F    8.6   286    --    --     --     --      --       1.0    9.0     --    --    --
 1415     5050             146  21.1C                                                      .02    .25          2AF   --                           S

07/12/77  5050             7.2  71.1F    8.4   285    --    --     --     --      --        --     --     --    --    --
 1040     5050              95  21.7C                                                                      15AF   --

07/12/77  5050             7.4  72.0F    8.2   282    --    --     --     --      --        --     --     --    --    --
 1350     5050              98  22.2C                                                                      14AF   --

07/12/77  5050             8.0  74.5F    8.3   286    --    --     --     --      --        --     --     --    --    --
 1840     5050             109  23.6C                                                                      14AF   --

07/12/77  5050             6.9  71.1F    8.4   287    --    --     --     --      --        --     --     --    --    --
 2145     5050              91  21.7C                                                                      15AF   --

07/13/77  5050             6.1  68.0F    8.3   286    --    --     --     --      --        --     --     --    --    --
 0150     5050              7[illegible]  20.0C                                                            17AF   --

07/13/77  5050             6.4  67.0F    8.1   285    --    --     --     --      --        --     --     --    --    --
 0645     5050              81  19.4C                                                                      14AF   --
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MINERAL ANALYSES OF SURFACE WATER

A1 1751.00 PIT R A COU RD 70 A23E1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MG	NA	K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/13/77	5050		7.2	69.1F	8.4	356	--	--	--	--	--	--	--	--	--	--				
0945	5050		93	20.6C											3AF	--				
07/13/77	5050		8.7	74.0F	7.7	290	--	--	--	--	--	11	--	--	--	--				
1350	5050		11[illegible]	23.3C								.23			3AF	--				S
07/13/77	5050		8.9	74.0F	8.3	285	--	--	--	--	129	--	--	--	--	--				
1930	5050		121	23.3C	8.3						2.58				13AF	--				S
07/14/77	5050		7.7	72.0F	8.4	288	--	--	--	--	130	--	--	--	--	--				
0140	5050		102	22.2C	8.0						2.60				12AF	--				S
07/14/77	5050		7.2	69.1	7.7	290	--	--	--	--	135	--	--	--	--	--				
0600	5050		93	20.6C	8.7						2.70				15AF	--				S
07/14/77	5050			68.5F			--	--	--	--	--	--	--	--	--	--				
0900	5050	30E		20.3C												--				
08/24/77	5050		6.5	67.0F	8.1	246	--	--	--	--	--	--	--	--	--	--				
0450	5050		82	19.4C	7.5										16AF	--				
08/24/77	5050		7.0	64.0F	7.5	242	--	--	--	--	--	--	--	--	--	--				
0840	5050		85	17.8C	7.7										13AF	--				
08/24/77	5050		7.7	65.0F	7.6	244	--	--	--	--	122	--	--	--	--	--				
1230	5050		95	18.3C	7.7						2.44				15AF	--				S
08/24/77	5050		7.1	67.0F	7.6	244	--	--	--	--	--	--	--	--	--	--				
1630	5050		89	19.4C	7.7										13AF	--				
08/24/77	5050		6.6	65.0F	7.4	268	--	--	--	--	--	--	--	--	--	--				
2100	5050		81	18.3C	7.6										12AF	--				
08/25/77	5050					252	--	--	--	--	--	--	--	--	--	--				
	5050														15AF	--				

MINERAL ANALYSES OF SURFACE WATER

A1 1751.00 PIT R A COU RD 70 A23E1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. O DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE						MILLIGRAMS PER LITER			
08/25/77 0110	5050 5050		7.3 90	65.0F 18.3C	7.3 8.1	265 264	--	--	19 .83 28	--	121 2.42	--	5.6 .16	--	.20 12A	-- --		105		S
09/27/77 1500	5050 5050		7.8 88	58.0F 14.4C	 7.6	280 290	--	--	--	--	135 2.70	--	--	--	-- 15AF	-- --				S
09/28/77 1500	5050 5050				 7.7	285	--	--	--	--	132 2.64	--	--	--	-- 9AF	-- --				S
05/22/78 1500	5050 5050			63.0F 17.2C	7.7 8.1	170	--	--	14 .61 34	--	82 1.64	--	2.9 .08	--	.10	-- --		59		S
06/28/78 0535	5050 5050		6.9 84	64.0F 17.8C	7.8 7.9	265	--	--	--	--	--	--	--	--	-- 7AF	-- --				
06/28/78 0935	5050 5050		9.4 114	64.0F 17.8C	7.6 8.2	271	--	--	26 1.13 39	--	131 2.62	--	3.0 .08	--	.10 6AF	-- --		87		S
06/28/78 1435	5050 5050		8.0 101	67.0F 19.4C	7.8	265	--	--	--	--	--	--	--	--	-- 7AF	-- --				
06/28/78 1900	5050 5050		8.0 97	64.0F 17.8C	7.8	246	--	--	--	--	--	--	--	--	-- 7AF	-- --				
06/28/78 2135	5050 5050		4.2 52	65.0F 18.3C	8.1	290	--	--	--	--	--	--	--	--	-- 2AF	-- --				
06/29/78 0145	5050 5050		0.7 8	63.0F 17.2C	7.6	275	--	--	--	--	--	--	--	--	-- 2AF	-- --				
08/02/78 0540	5050 5050		6.0 80	73.0F 22.8C	7.6	207	--	--	--	--	--	--	--	--	-- 10AF	-- --				
08/02/78 0945	5050 5050		6.5 91	77.0F 25.0C	7.6 8.0	207	--	--	17 .74 35	--	103 2.06	--	1.6 .05	--	.00 10AF	-- --		70		S

MINERAL ANALYSES OF SURFACE WATER

A1 1751.00 PIT R A COU RD 70 A23E1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE								MILLIGRAMS PER LITER					
							CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
08/02/78	5050		7.6	81.0F	7.7	197	--	--	--	--	--	--	--	--	--	--				
1350	5050		110	27.2C											14AF	--				
08/02/78	5050			78.1F	8.1	189	--	--	--	--	--	--	--	--	--	--				
1920	5050			25.6C											10AF	--				
08/02/78	5050		6.6	76.0F	7.9	196	--	--	--	--	--	--	--	--	--	--				
2150	5050		91	24.4C											8AF	--				
08/03/78	5050		5.6	73.0F	7.7	193	--	--	--	--	--	--	--	--	--	--				
0200	5050		75	22.8C											10AF	--				
05/14/79	5050		7.8	69.4F	7.8	181	--	--	--	--	--	--	--	--	--	--				
1530	5050		101	20.8C											13AF	--				
05/14/79	5050		8.0	66.9F	8.1	175	--	--	--	--	--	--	--	--	--	--				
1930	5050		101	19.4C											18AF	--				
05/14/79	5050		7.4	62.6F	7.9	175	--	--	--	--	--	--	--	--	--	--				
2340	5050		89	17.0C		170									19AF	--				
05/15/79	5050		7.2	61.3F	7.9	175	--	--	--	--	74	--	--	--	--	--				
0340	5050		85	16.3C	7.7	171					1.48				15AF	--				S
05/15/79	5050		7.4	61.7	7.5	173	--	--	--	--	--	--	--	--	--	--				
0725	5050		88	16.5C											16AF	--				S
05/15/79	5050		7.4	66.2F	7.5	175	--	--	--	--	75	--	--	--	--	--				
1115	5050		92	19.0C	7.7						1.50				14AF	--				S
05/16/79	5050		7.4	61.7F	7.5	175	--	--	--	--	--	--	--	--	--	--				
0900	5050	180E	88	16.5C												--				S
06/25/79	5050		7.5	77.9F	7.8	240	--	--	--	--	--	--	.9	--	--	--				
1235	5050	30E	106	25.5C		244							.03		6AF	--				S

MINERAL ANALYSES OF SURFACE WATER

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 DATE    SAMPLER  G.H.   DO      TEMP   FIELD                                          MILLIGRAMS PER LITER       MILLIGRAMS PER LITER
 TIME     LAB      Q     SAT           LABORATORY   MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                 DEPTH                   PH    EC                            PERCENT REACTANCE VALUE      B     F     TDS     TH    SAR     REM
                                                   CA     MG     NA     K      CACO3      SO4    CL   NO3  TURB  SIO2   SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

            A1  1751.00          PIT R A COU RD 70                               A23E1 CONTINUED

06/25/79  5050          7.5  76.1F  7.9   240   --     --     --     --     108        --    1.0  --    --    --
  1625    5050          104  24.5C  8.0   247                               2.16             .03        7AF   --
                                                                                                                                    S
06/25/79  5050          6.9  71.6   8.1   250   --     --     --     --     --         --     .8  --    --    --
  2020    5050           91  22.0C        246                                                .02        6AF   --

06/26/79  5050          6.4         8.1   250   --     --     --     --     --         --    1.0  --    --    --
  0030    5050                            251                                                .03        6AF   --
                                                                                                                                    S
06/26/79  5050          6.7  68.9   8.0   240   --     --     --     --     106        --    1.0  --    --    --
  0430    5050           86  20.5C  8.1   248                               2.12             .03        5AF   --
                                                                                                                                    S
06/26/79  5050          6.8  71.6   7.7   250   --     --     --     --     --         --    1.0  --    --    --
  0905    5050   30E     90  22.0C        252                                                .03        6AF   --

07/26/79  5050               74.3F        246   --     --     --     --     --         --    --   --    --    --
  1115    5050   20E         23.5C                                                                            --

08/15/79  5050          7.5  67.1F  7.9   230   --     --     --     --     --         --    --   --    --    --
  0935    5050           94  19.5C        228                                                           22AF  --

08/15/79  5050          7.8  71.6F  7.6   230   --     --     --     --     --         --    --   --    --    --
  1330    5050          103  22.0C        230                                                           21AF  --
                                                                                                                                    S
08/15/79  5050          7.5  67.8F  7.8   240   --     --     --     --     90         --    1.0  --    --    --
  1740    5050           95  19.9C  7.6   231                               1.80             .03        18AF  --
                                                                                                                                    S
08/15/79  5050          7.1  64.4F  8.1   235   --     --     --     --     --         --    --   --    --    --
  2145    5050           87  18.0C        231                                                           19AF  --
                                                                                                                                    S
08/16/79  5050          7.2  64.4F  7.9   229   --     --     --     --     --         --    --   --    --    --
  0135    5050           85  18.0C                                                                      18AF  --
                                                                                                                                    S
08/16/79  5050          7.2  62.9F  7.7   230   --     --     --     --     88         --    1.0  --    --    --
  0540    5050           97  17.1C  7.6                                     1.76             .03        16AF  --
                                                                                                                                    S
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                                     MINERAL ANALYSES OF SURFACE WATER

 DATE     SAMPLER G.H.   DO    TEMP   FIELD                                 MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME      LAB    Q      SAT         LABORATORY  MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                 DEPTH                PH    EC                            PERCENT REACTANCE VALUE     B     F      TDS    TH    SAR    REM
                                                 CA    MG    NA    K      CACO3    SO4   CL   NO3   TURB  SIO2    SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              A1  1751.00         PIT R A COU RD 70                   A23E1 CONTINUED

08/16/79  5050          7.0  64.2F  7.6   220    --    --    17    --     106      --   4.0   --    .10   --            83
  1130    5050    25E   85   17.9C  8.1   234                .74          2.12           .11        23AF  --
                                                              31                                                                  S

10/22/79  5050          9.5  45.9   7.7   315    --    --    --    --      --      --   --    --    --    --
  0940    5050    50E   92    7.7C        318                                                       16AF  --

10/22/79  5050          9.2  46.4F  7.8   315    --    --    --    --      --      --   --    --    --    --
  1340    5050          90    8.0C        323                                                       17AF  --

10/22/79  5050          9.5  47.3F  7.9   340    --    --    --    --      --      --   --    --    --    --
  1750    5050          94    8.5C        316                                                       17AF  --

10/22/79  5050          9.5  46.9F  8.0   340    --    --    --    --      --      --   --    --    --    --
  2135    5050          94    8.3C        314                                                       18AF  --
                                                                                                                                  S

10/23/79  5050          9.3  44.4F  8.0   315    --    --    --    --      --      --   --    --    --    --
  0440    5050          88    6.9C        318                                                       16AF  --
                                                                                                                                  S

10/23/79  5050          9.6  44.4   8.1   315    --    --    --    --      --      --   --    --    --    --
  0610    5050          91    6.9C        318                                                       16AF  --

10/23/79  5050          9.6  43.7F  7.7   320    --    --    26    --     116      --   8.0   --    .20   --            82
  0740    5050    65E   90    6.5C  7.7   320               1.13          2.32           .23        16AF  --
                                                              41                                                                  S

10/24/79  5050               47.3                --    --    --    --     133      --   --    --    --    --
  0745    5050                8.5C  7.9   304                             2.66                      18AF  --
                                                                                                                                  S

01/17/80  5050          9.7  40.1   7.3   160    11   4.0    13   4.0      55      --   3.0   --    .20   --            44    0.9
  1250    5050          87    4.5C  7.9   148   .55   .33   .57   .10     1.10           .08       120A   --             0    0.8
                                                 35    21    37     6                                                             S
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                                         MINERAL ANALYSES OF SURFACE WATER

 DATE      SAMPLER  G.H.    DO    TEMP   FIELD                                MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME      LAB      Q       SAT          LABORATORY   MINERAL CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
                    DEPTH                 PH    EC                            PERCENT REACTANCE VALUE      B      F       TDS     TH     SAR     REM
                                                   CA     MG     NA     K     CACO3     SO4    CL    NO3   TURB   SIO2     SUM     NCH    ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                A1  1758.00         CLOVERSWALE C A HWY 299                       A23E1

11/17/59  5050             8.5  35.0F                9.0     .8     84   4.9     155       14     32   2.7    .29     .4               26    7.2
  1000    5050       .5     70   1.7C   7.6    431    .45    .07   3.65   .13    3.10      .29    .90   .04           32.0     273       0    7.9
                                                       10      2     85     3      72        7     21     1

                A1  1760.00         HOT C A HWY 299                               A23E1

11/17/59  5050                  83.0F                4.2     .1     47   1.8      90      5.6     13   1.2    .10     .3               11    6.2
  1030    5050       2E         28.3C   9.1    241    .21    .01   2.04   .05    1.80      .12    .37   .02           42.0     169       0    3.3
                                                        9            88     2      78        5     16     1

                A1  1765.00         PIT R BL ALTURAS                              A23E2

09/26/62  5050                                        25     10     38   8.0     161       13    8.4   3.2    .30     .1      249      104    1.6      E
  0925    5000       20                 8.4    339   1.25    .82   1.65   .20    3.22      .27    .24   .05    55E   33.0      235        0    2.8
                                                       32     21     42     5      85        7      6     1

                A1  1772.00         ROCK C A HWY 299                              A23E2

09/01/59  5050                  64.0F                 48     17     39    17     213       64    9.5   4.1    .07     .4              191    1.2
  1520    5050       2E         17.8C   7.9    557   2.40   1.40   1.70   .43    4.26     1.33    .27   .07           66.0     392       0    2.6
                                                       40     24     29     7      72       22      5     1

                A1  1773.00         RATTLESNAKE C A HWY 299                       A23E2

11/17/59  5050            12.6  38.0                  30     13     33   4.4     163       24     11   1.6    .03     .2              130    1.3
  1100    5050       .5    109   3.3C   8.0    393   1.50   1.07   1.44   .11    3.26      .50    .31   .03           11.0     226       0    2.3
                                                       36     26     35     3      80       12      8     1

05/11/60  5050             7.1  61.0F   8.1           34     19     71   4.5     224       64     25   1.1    .08     .3              163    2.4
  1140    5050       .5     84  16.1C   7.9    623   1.70   1.56   3.09   .12    4.48     1.33    .71   .02           25.0     378       0    4.9
                                                       26     24     48     2      69       20     11

09/14/60  5050             6.5  61.0F   7.2           18     10     12   2.9     109      1.8    3.0   1.0    .04     .1               87    0.6
  1000    5050       7E     77  16.1C   8.0    226    .90    .82    .52   .07    2.18      .04    .08   .02           24.0     138       0    0.8
                                                       39     35     23     3      94        2      3     1

04/18/61  5050             9.0  48.0F   8.4           39     19     58   5.0     213       59     24    .5    .07     .3              177    1.9
  1015    5050       1E     90   8.9C   8.0    592   1.95   1.56   2.52   .13    4.26     1.23    .68   .01           30.0     362       0    3.9
                                                       32     25     41     2      69       20     11

09/27/62  5050                                        23    9.8     13   1.8     121      5.0    2.0   1.1    .00     .1      160       98    0.6
  1730    5000      11E                 8.2    234   1.15    .81    .57   .05    2.42      .10    .06   .02    75E   22.0      150        0    0.9
                                                       45     31     22     2      93        4      2     1
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MINERAL ANALYSES OF SURFACE WATER

A1 1775.00 PIT R A ALTURAS LUMBER MILL A23E2

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
09/26/62 1120	5050 5000	30E			8.0	330	22 1.10 30	8.8 .72 20	38 1.65 45	8.5 .22 6	152 3.04 84	13 .27 8	7.6 .21 6	4.8 .08 2	.10 70E	.5 34.0	255 228	91 0	1.7 2.9	E

A1 2020.00 PIT R NF A CENTERVILLE RD A23E2

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
09/27/62 1400	5050 5000	1E			8.7	356	27 1.35 32	11 .90 21	42 1.83 44	4.6 .12 3	182 3.64 91	10 .21 5	5.4 .15 4	.5 .01	.10 40E	.1 30.0	249 240	113 0	1.7 3.1	S
06/02/77	5050 5050					310	--	--	--	--	--	--	--	--	-- 2AF	-- --				
06/02/77 1330	5050 5050		11.2 166	83.0F 28.3C	8.2 8.0	320	--	--	--	--	137 2.74	.5 .01	13 .37	--	-- 0AF	-- --				S
07/12/77 0930	5050 5050	5E	9.5 130	75.0 23.9C	8.3	480	--	--	--	--	--	--	--	--	-- 2AF	-- --				
07/12/77 1300	5050 5050		10.5 151	79.0F 26.1C	8.3	475	--	--	--	--	--	--	--	--	-- 2AF	-- --				
07/12/77 1800	5050 5050		8.3 117	78.0F 25.5C	8.2	468	--	--	--	--	--	--	--	--	-- 3AF	-- --				
07/12/77 2100	5050 5050		6.1 76	66.0F 18.9C	8.4	450	--	--	--	--	--	--	--	--	-- 3AF	-- --				
07/13/77 0100	5050 5050		5.4 60	56.0F 13.3C	8.2	452	--	--	--	--	--	--	--	--	-- 3AF	-- --				
07/13/77 0500	5050 5050		6.1 66	54.0F 12.2C	7.7	455	--	--	--	--	--	--	--	--	-- 3AF	-- --				
07/13/77 1000	5050 5050		9.0 117	70.0F 21.1C	8.2	464	--	--	--	--	--	--	--	--	-- 3AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MILLIGRAMS PER LITER MG	MILLIEQUIVALENTS PER LITER NA	PERCENT REACTANCE VALUE K	CACO3	SO4	CL	NO3	B TURB	F SIO2	MILLIGRAMS PER LITER TDS SUM	TH NCH	SAR ASAR	REM
	A1	2020.00		PIT R NE A CENTERVILLE RD								A23E2 CONTINUED								
07/13/77	5050		9.6	88.0F	7.7	454	--	--	--	--	--	--	--	--	--	--				
1310	5050		149	31.1C											4AF	--				
07/13/77	5050		8.4	74.0F	8.8	444	--	--	--	--	204	14	--	--	--	--				
1900	5050		114	23.3C	8.7						4.08	.30			5AF	--				S
07/14/77	5050		5.5	61.0	8.2	473	--	--	--	--	218	--	--	--	--	--				
0100	5050		65	16.1C	8.3						4.36				5AF	--				S
07/14/77	5050		5.9	56.0F	7.3	512	--	--	--	--	238	--	--	--	--	--				
0530	5050		65	13.3C	8.2						4.76				5AF	--				S
07/14/77	5050			64.0	7.3	525	--	--	--	--	--	--	--	--	--	--				
0815	5050	3E		17.8C												--				
07/27/77	5050		9.4	77.0F	8.2	262	--	--	--	--	--	--	--	--	--	--				
1400	5050		132	25.0C	8.2										2AF	--				
08/24/77	5050		4.6	58.0F	8.3	506	--	--	--	--	--	--	--	--	--	--				
0410	5050	3E	52	14.4C	7.4										4AF	--				
08/24/77	5050		7.9	57.0F	7.2	503	--	--	--	--	--	--	--	--	--	--				
0800	5050		89	13.9C	7.8										3AF	--				
08/24/77	5050		10.6	60.0F	8.6	495	--	--	--	--	232	--	--	--	--	--				
1200	5050		124	15.5C	8.0						4.64				4AF	--				S
08/24/77	5050		7.4	68.0	7.8	308	--	--	--	--	--	--	--	--	--	--				
1600	5050		94	20.0C	7.1										18AF	--				
08/24/77	5050		5.1	62.0F	7.4	391	--	--	--	--	--	--	--	--	--	--				
2030	5050		61	16.7C	7.4										10AF	--				
08/25/77	5050		5.2	57.0F	7.2	480	--	--	--	--	--	--	--	--	--	--				
0030	5050		58	13.9	7.4										9AF	--				

MINERAL ANALYSES OF SURFACE WATER

A1 2020.00 PIT R NF A CENTERVILLE RD A23E2 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
08/25/77 0600	5050 5050				 8.3	485 507	--	--	57 2.48 39	--	226 4.52	--	15 .42	--	.20 3A	-- --		191		S
09/27/77 1400	5050 5050		7.8 92	61.0 16.1C	 8.4	442	--	--	--	--	227 4.54	--	--	--	-- 2AF	-- --				S
09/28/77 1400	5050 5050	 2E	9.5 108	58.0 14.4C	 8.0	412	--	--	--	--	213 4.26	--	--	--	-- 3AF	-- --				S
10/04/77 1300	5050 5050	 2E	10.4 115	55.9 13.3C	8.0		--	--	--	--	--	--	--	--	--	-- --				
04/11/78 1200	5050 5050	 175E	9.4 101	53.1F 11.7C	7.6	124	--	--	--	--	54 1.08	--	--	--	-- 0AF	-- --				S
05/22/78	5050 5050			62.0 16.7C	7.6 8.1	150	--	--	6.9 .30 21	--	66 1.32	--	.1 .00	--	.00	-- --		58		S
06/28/78 0505	5050 5050		6.5 72	55.9 13.3C	7.4 7.8	298	--	--	--	--	--	--	--	--	-- 1AF	-- --				
06/28/78 0900	5050 5050		7.9 97	64.4F 18.0C	7.8 8.3	303	--	--	20 .87 27	--	156 3.12	--	1.4 .04	--	.10	-- --		119		S
06/28/78 1330	5050 5050		8.6 116	73.0F 22.8C	8.1	264	--	--	--	--	--	--	--	--	-- 1AF	-- --				
06/28/78 1820	5050 5050		8.0 99	65.0F 18.3C	8.0	265	--	--	--	--	--	--	--	--	-- 0AF	-- --				
06/28/78 2100	5050 5050		7.0 85	63.5F 17.5C	7.3	277	--	--	--	--	--	--	--	--	-- 1AF	-- --				
06/29/78 0100	5050 5050		5.7 68	62.0F 16.7C	7.4	285	--	--	--	--	--	--	--	--	-- 1AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 2020.00 PIT R NF A CENTERVILLE RD A2,E2 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MG	NA	K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	SO4	CL	NO3	B TURB	F SIO2	MILLIGRAMS PER LITER TDS SUM	TH NCH	SAR ASAR	REM
07/11/78 1230	5050 5050	 5E	8.7 117	73.0F 22.8C	8.0		--	--	--	--	--	--	--	--	--	-- --				
08/02/78 0505	5050 5050		5.1 58	58.0F 14.4C	8.0	406	--	--	--	--	--	--	--	--	-- 2AF	-- --				
08/02/78 0905	5050 5050		10.1 140	76.0F 24.4C	8.2 8.3	391	--	--	36 1.57 35	--	202 4.04	--	6.2 .17	--	.00 1AF	-- --		147		S
08/02/78 1315	5050 5050		11.3 166	82.0 27.8C	8.3	410	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/02/78 1800	5050 5050		7.9 114	80.1F 26.7C	8.4	364	--	--	--	--	--	--	--	--	-- 5AF	-- --				
08/02/78 2115	5050 5050		5.7 76	72.0F 22.2C	8.4	267	--	--	--	--	--	--	--	--	-- 2AF	-- --				
08/03/78 0115	5050 5050		5.4 65	63.0F 17.2C	8.3	285	--	--	--	--	--	--	--	--	-- 4AF	-- --				
10/26/78 0700	5050 5050	 3E	10.0 89	39.9F 4.4C			--	--	--	--	--	--	--	--	--	-- --				
04/09/79 1200	5050 5050	 25E	10.0 103	50.0F 10.0C	7.5		--	--	--	--	--	--	--	--	--	-- --				
05/14/79 1505	5050 5050		9.0 108	63.0F 17.2C	7.5	158	--	--	--	--	--	--	--	--	-- 6AF	-- --				
05/14/79 1900	5050 5050		10.0 121	63.5F 17.5C	7.5	141	--	--	--	--	--	--	--	--	-- 7AF	-- --				
05/14/79 2305	5050 5050		7.6 90	61.7F 16.5C	7.9	150 143	--	--	--	--	--	--	--	--	-- 7AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 2020.00 PIT R NF A CENTERVILLE RD A23E2 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	FIELD LABORATORY EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CA	MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
05/15/79	5050		8.2	56.8F	7.7	135	--	--	--	--	57	--	--	--	--	--				
0305	5050		92	13.8C	7.5	130					1.14				14AF	--				S
05/15/79	5050		9.1	52.7F	7.3	128	--	--	--	--	--	--	--	--	--	--				
0650	5050		97	11.5C											34AF	--				S
05/15/79	5050		9.3	56.3F	7.3	133	--	--	--	--	65	--	--	--	--	--				
1050	5050		104	13.5C	7.7						1.30				17AF	--				S
05/16/79	5050		9.1	53.0F	7.3	130	--	--	--	--	--	--	--	--	--	--				
0815	5050	80E	97	11.7C												--				S
06/25/79	5050		7.0	84.2	8.0	340	--	--	--	--	--	--	1.0	--	--	--				
1200	5050	3E	105	29.0C		352							.03		1AF	--				S
06/25/79	5050		7.1	86.9	7.9	330	--	--	--	--	166	--	1.0	--	--	--				
1600	5050		109	30.5C	8.2	345					3.32		.03		1AF	--				S
06/25/79	5050		6.5	69.8	8.2	335	--	--	--	--	--	--	1.0	--	--	--				
2000	5050		84	21.0C		338							.03		1AF	--				
06/26/79	5050		6.5	62.6F	7.9	330	--	--	--	--	--	--	.8	--	--	--				
0005	5050		78	17.0C		336							.02		1AF	--				S
06/26/79	5050		6.5	56.3F	8.0	335	--	--	--	--	162	--	.8	--	--	--				
0400	5050		72	13.5C	8.1	337					3.24		.02		1AF	--				S
06/26/79	5050		7.1	64.4	7.7	380	--	--	--	--	--	--	1.0	--	--	--				
0800	5050	3E	87	18.0C		342							.03		1AF	--				S
08/15/79	5050		3.7	60.8F	7.5	405	--	--	--	--	--	--	--	--	--	--				
0900	5050		43	16.0C		411									4AF	--				S
08/15/79	5050		3.8	77.4F	7.6	420	--	--	--	--	--	--	--	--	--	--				
1300	5050		53	25.2C		409									10AF	--				

MINERAL ANALYSES OF SURFACE WATER

A1 $_20_20.00$ PIT R NF A CENTERVILLE RD A$_{23}$F$_2$ CONTINUED

DATE TIME	SAMPLER LAB	G.H. G DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
08/15/79 1705	5050 5050		5.5 75	73.0F 23.3C	7.8 7.0	455 437	--	--	--	--	169 3.38	--	2.0 .06	--	-- 8AF	-- --				S
08/15/79 2105	5050 5050		6.4 79	65.5 18.6C	8.4	495 480	--	--	--	--	--	--	--	--	-- 2AF	-- --				S
08/16/79 0100	5050 5050		5.2 60	[illegible] 14.9C	8.0	465 499	--	--	--	--	--	--	--	--	-- 4AF	-- --				S
08/16/79 0505	5050 5050		3.8 41	53.4 11.9C	7.8	495 509	--	--	--	--	214 4.28	--	2.0 .06	--	-- 3AF	-- --				S
08/16/79 1015	5050 5050		4.3 47	55.2F 12.9C	8.0	550 512	--	--	--	--	--	--	--	--	-- 2AF	-- --				
10/22/79 0900	5050 5050	15E	9.5 91	44.8F 7.1C	8.1 7.9	365 366	--	--	--	--	180 3.60	--	--	--	-- 2AF	-- --				S
10/22/79 1300	5050 5050		11.2 114	49.3F 9.6C	8.3	360 354	--	--	--	--	--	--	--	--	-- 2AF	-- --				
10/22/79 1715	5050 5050		9.6 97	48.6F 9.2C	8.3	380 359	--	--	--	--	--	--	--	--	-- 2AF	-- --				S
10/22/79 2100	5050 5050		8.5 84	46.8F 8.2C	8.1	380 358	--	--	--	--	--	--	--	--	-- 2AF	-- --				S
10/23/79 0400	5050 5050		8.2 79	45.3 7.4C	8.0	350 345	--	--	--	--	--	--	--	--	-- 2AF	-- --				S
10/23/79 0530	5050 5050		8.4 81	45.3F 7.4C	8.1	345 349	--	--	--	--	--	--	--	--	--	-- --				S
10/23/79 0700	5050 5050	15E	8.6 83	45.5F 7.5C	7.8 7.5	350 351	--	--	8.0 .35 26	--	62 1.24	--	1.0 .03	--	.00 2AF	-- --		51		S

MINERAL ANALYSES OF SURFACE WATER

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 DATE     SAMPLER  G.H.   DO    TEMP    FIELD                                    MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME     .LAB     Q      SAT           LABORATORY  MINERAL CONSTITUENTS IN      MILLIEQUIVALENTS PER LITER
                   DEPTH                .PH    EC                                PERCENT REACTANCE VALUE     B     F      TDS    TH    SAR    REM
                                                     CA     MG     NA     K      CACO3    SO4    CL    NO3  TURB  SIO2    SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              A1  2020.00         PIT R NF A CENTERVILLE RD                  A23E2 CONTINUED

10/24/79  5050                  46.4F  8.0    331    --     --     --     --     160     --     --    --    --    --
 0730     5050     10E           8.0C  7.8                                      3.20                        3AF   --
                                                                                                                                        S

01/17/80  5050            10.9  37.4   7.3    110    10     3.0    5.0    2.1     43     --     .0    --    .10   --                38    0.4
 1330     5050              94   3.0C  7.8    103   .50    .25    .22    .05     .86           .00          85A   --                 0    0.3
                                                     49     25     22     5                                                                 S

              A1  2100.00         PIT R NF A ALTURAS                         A23E2

09/01/59  5050                  78.0F                28     11     32    6.0     181    5.4    3.0   1.6   .09    .3               117    1.3
 1520     5050                  25.5C  8.0    365  1.40    .90   1.39    .15    3.62    .11    .08   .03         35.0    231       0    2.4
                                                     36     23     36     4       94      3      2     1

05/11/60  5050             8.1  63.0F  7.5           17    4.5    7.8    2.3      75    3.8     .0    .6   .04    .2                61    0.4
 1230     5050     35E      98  17.2C  7.8    161   .85    .37    .34    .06    1.50    .08    .00   .01         36.0    117       0    0.5
                                                     52     23     21     4       94      5                  1

09/14/60  5050             8.7  66.0F  7.5           24     12     29    4.7     165    4.1    2.6    .9   .05    .3               108    1.2
 1040     5050             108  18.9C  8.2    320  1.20    .99   1.26    .12    3.30    .09    .07   .01         19.0    195       0    2.1
                                                     34     28     35     3       95      3      2

04/18/61  5050             8.5  47.0   8.2           25    4.0     11    3.0      96    6.6    1.2    .5   .04    .2                79    0.5
 1035     5050     20E      84   8.3C  7.7    202  1.25    .33    .48    .08    1.92    .14    .03   .01         37.0    146       0    0.8
                                                     58     15     22     4       91      7      1

              A1  2202.00         PIT R NF BL PARKER C                       A23E2

05/04/56  5050                  45.0F                14    3.6    4.9    1.7      57    5.0     .4    .3   .00    .0                51    0.3
 0815     5050                   7.2C  6.6    116   .70    .30    .21    .04    1.14    .10    .01   .00         27.0     91       0    0.3
                                                     56     24     17     3       91      8      1

              A1  2275.00         PARKER C NR ALTURAS                        A23E2

11/16/59  5050            11.6  36.0                 21    5.7    8.4    2.6      94     .3     .7   1.0   .01    .0                76    0.4
 1615     5050      .5      98   2.2C  7.9    192  1.05    .47    .37    .07    1.88    .01    .02   .02         36.0    132       0    0.6
                                                     54     24     19     4       97      1      1     1
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                                      MINERAL ANALYSES OF SURFACE WATER

 DATE      SAMPLER  G.H.    DO     TEMP   FIELD                                 MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME      LAB       Q      SAT           LABORATORY  MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                   DEPTH                   PH    EC                             PERCENT REACTANCE VALUE     B     F      TDS    TH    SAR     REM
                                                     CA     MG     NA    K      CACO3      SO4    CL    NO3   TURB  SIO2     SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

               A1  2350.50          THOMS C NR DAVIS C                           A23E2

06/26/58  5050                66.0F                24    4.4    6.5   2.4      92        .0    2.0   1.0   .00    .1              78    0.3
 1000     5000      10E       18.9C  8.2   192   1.20    .36    .28   .06    1.84       .00    .06   .02         42.0     137       0    0.4
                                                   63     19     15     3      96                  3     1

               A1  2351.00          PIT R NF BL JOSEPH C                         A23E2

06/26/58  5050                69.0                 24    7.3    8.9   2.2     108       1.9    1.0    .3   .10    .4              90    0.4
 1015     5000      12E       20.5C  8.2   213   1.20    .60    .39   .06    2.16       .04    .03   .00         50.0     160       0    0.6
                                                   53     27     17     3      97         2      1

05/11/60  5050          8.1   64.0F  7.9           19    5.7    8.5   2.0      84        .8     .0   1.0   .06    .2              71    0.4
 1310     5050      15E 100   17.8C  7.9   174    .95    .47    .37   .05    1.68       .02    .00   .02         40.0     127       0    0.6
                                                   52     26     20     3      98         1            1

09/14/60  5050          8.6   56.0F  7.5           27     12     26   3.3     155        12    6.8    .4   .16    .2             117    1.0
 0900     5050       4E  96   13.3C  8.2   325   1.35    .99   1.13   .08    3.10       .25    .19   .01         42.0     223       0    1.9
                                                   38     28     32     2      87         7      5

04/18/61  5050          9.5   46.0F  8.4           20    7.0     10   3.0      97       1.3    2.1    .5   .08    .2              79    0.5
 1300     5050      10E  93    7.8C  8.1   192   1.00    .58    .44   .08    1.94       .03    .06   .01         39.0     141       0    0.7
                                                   48     28     21     4      95         1      3

09/27/62  5050                                     26     12     32   2.9     157        13    7.0    .8   .00    .1     236     113    1.3     E
          5000                       8.4   323   1.30    .99   1.39   .07    3.14       .27    .20   .01   2E   40.0     228       0    2.3
                                                   35     26     37     2      87         7      6

04/11/74  5050         10.5   50.0F  7.7   115     12    3.9    6.2   1.5      54       1.8     .0    .2   .00    --     100      45    0.4     E
 1635     5050     200E 109   10.0C  7.7   114    .60    .32    .27   .04    1.08       .04    .00   .00   12A    --      58       0    0.4     T
                                                   49     26     22     3      96         4

               A1  2352.00          JOSEPH C AB NF PIT R                         A23E2

06/28/58  5050                70.0F                22    6.1    6.6   3.0      97        .0    2.0    .8   .00    .3              80    0.3
 1045     5000       3E       21.1C  8.0   187   1.10    .50    .29   .08    1.94       .00    .06   .01         51.0     150       0    0.5
                                                   56     25     15     4      97                3

04/11/74  5050         10.6   49.0F  7.3    84     --     --    4.2    --      38        --     .0    --   .00    --              32
 1625     5050      24E 109    9.4C  7.3    81                  .18            .76              .00         7A     --
                                                                 22
                                                                                                                                           S
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                                  MINERAL ANALYSES OF SURFACE WATER

 DATE     SAMPLER G.H.   DO    TEMP    FIELD                               MILLIGRAMS PER LITER         MILLIGRAMS PER LITER
 TIME      LAB     Q     SAT        LABORATORY   MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                 DEPTH                pH    EC                             PERCENT REACTANCE VALUE     B      F     TDS    TH    SAR    REM
                                                 CA     MG     NA     K     CACO3     SO4   CL    NO3  TURB  SIO2    SUM   NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              A1  3000.00         PINE C A NEW PINE C                             A24A0

04/11/74  5050          10.9  44.0F  7.1   105    --     --    5.8    --     43       --    .0   --   .00    --                40
  0820    5050     3E    105   6.7C  7.3   103                 .25           .86            .00        3A     --
                                                                24                                                                      S

              A1  3010.00         COTTONWOOD C NR NEW PINE C                      A24A0

04/11/74  5050          12.4  41.0F  7.9   150    --     --    5.4    --     74       --    .0   --   .00    --                68
  0910    5050     6E    114   5.0C  7.7   150                 .23          1.48            .00        1A     --
                                                                14                                                                      S

              A1  4000.00         FITZHUGH C A HWY 395                            A23E2

11/17/59  5050          10.8  45.0F               15    4.2    6.6   2.3     71       .0   1.2  1.0  .01    .1                55   0.4
  1430    5050     1E    104   7.2C  7.7   142   .75    .35    .29   .06   1.42      .00   .03  .02       37.0     110      0   0.4
                                                  52     24     20     4     97              2    1

              A1  4001.00         DORRIS RES DIV A HWY 395                        A23E2

09/27/62  5050                                    15    4.7     11   3.2     75      5.0   1.0  1.5  .00    .1     119      57   0.6    E
          5000                       7.7   154   .75    .39    .48   .08   1.50      .10   .03  .02  30E  31.0     117       0   0.8
                                                  44     23     28     5     91        6     2    1

              A1  4010.00         PIT R SF A ALTURAS                              A23E2

09/27/62  5050                                    21    9.6     34   7.5    147       10   5.8   .7  .20    .1     212      92   1.5
  0200    5000     32                7.9   307  1.05    .79   1.48   .19   2.94      .21   .16  .01  35E  35.0     212       0   2.5
                                                  30     23     42     5     89        6     5                                        S

06/02/77  5050                             348    --     --     --    --     --       --    --   --   --     --
          5050                                                                                       9AF     --

06/02/77  5050           8.0  70.0F  7.6   354    --     --     --    --    158       10    10   --   --     --
  1345    5050           104  21.1C                                         3.16      .21   .28        9AF     --
                                                                                                                                        S

07/12/77  5050           6.9  70.0   8.0   240    --     --     --    --     --       --    --   --   --     --
  1000    5050    10E     90  21.1                                                                    16AF     --

07/12/77  5050           7.8  74.0F  8.1   243    --     --     --    --     --       --    --   --   --     --
  1310    5050           106  23.3C                                                                   14AF     --

07/12/77  5050           8.2  76.0F  8.3   242    --     --     --    --     --       --    --   --   --     --
  1800    5050           114  24.4C                                                                   19AF     --
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MINERAL ANALYSES OF SURFACE WATER

A1 4010.00 PIT R SF A ALTURAS A23E2 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/12/77 2110	5050 5050		7.9 105	72.0F 22.2C	7.8	253	--	--	--	--	--	--	--	--	-- 15AF	-- --				
07/13/77 0130	5050 5050		5.5 71	69.0F 20.5C	8.0	248	--	--	--	--	--	--	--	--	-- 16AF	-- --				
07/13/77 0620	5050 5050		5.5 68	65.0F 18.3C	7.8	251	--	--	--	--	--	--	--	--	-- 17AF	-- --				
07/13/77 0915	5050 5050			67.0F 19.4C	8.1	257	--	--	--	--	--	--	--	--	-- 15AF	-- --				
07/13/77 1330	5050 5050		7.7 105	74.0 23.3C	7.7	259	--	--	--	--	--	--	--	--	-- 14AF	-- --				
07/13/77 1910	5050 5050		9.2 127	76.0F 24.4C	8.3 8.0	292	--	--	--	--	112 2.24	10 .22	--	--	-- 15AF	-- --				S
07/14/77 0115	5050 5050		5.7 74	70.0 21.1C	8.1 7.9	250	--	--	--	--	111 2.22	--	--	--	-- 17AF	-- --				S
07/14/77 0535	5050 5050		6.0 74	65.0 18.3C	7.5 8.2	249	--	--	--	--	112 2.24	--	--	--	-- 17AF	-- --				S
07/14/77 0830	5050 5050	25E		65.0F 18.3C	7.5	255	--	--	--	--	--	--	--	--	--	-- --				
07/27/77	5050 5050					232	--	--	--	--	--	--	--	--	-- 17AF	-- --				
08/24/77 0420	5050 5050	5E	5.6 66	61.0F 16.1C	7.6 7.5	302	--	--	--	--	--	--	--	--	-- 14AF	-- --				
08/24/77 0815	5050 5050		6.2 74	62.0F 16.7C	7.4 7.5	293	--	--	--	--	--	--	--	--	-- 17AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

```
 DATE     SAMPLER  G.H.   DO     TEMP   FIELD                                         MILLIGRAMS PER LITER         MILLIGRAMS PER LITER ..
 TIME      LAB      Q     SAT           LABORATORY   MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                  DEPTH                  PH     EC                             PERCENT REACTANCE VALUE     R     F      TDS     TH     SAR      REM
                                                     CA     MG     NA     K      CACO3      SO4    CL    NO3  TURB  SIO2     SUM     NCH    ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

             A1  4010.00          PIT R SF A ALTURAS                             A23E2 CONTINUED

08/24/77  5050            7.3  62.0F  7.4   291    --     --     --     --     137        --     --   --     --    --
  1210    5050             88  16.7C  7.6                                      2.74                         18AF   --
                                                                                                                                          S

08/24/77  5050            6.6  65.0   7.6   286    --     --     --     --      --        --     --   --     --    --
  1615    5050             81  18.1C  7.5                                                                   15AF   --

08/24/77  5050            6.7  64.0   7.3   333    --     --     --     --      --        --     --   --     --    --
  2030    5050             82  17.8C  7.3                                                                   14AF   --

08/25/77  5050                              312    --     --     --     --      --        --     --   --     --    --
          5050                                                                                              13AF   --

08/25/77  5050            6.0  60.0F  7.3   320    --     --     31     --     140        --     10   --    .20    --               125
  0045    5050             70  15.5C  8.1   328                1.35            2.80             .28         12A    --
                                                                 35                                                                       S

09/27/77  5050            7.2  58.0         358    --     --     --     --     162        --     --   --     --    --
  1415    5050             82  14.4C  8.0                                      3.24                         13AF   --
                                                                                                                                          S

09/28/77  5050            7.8  55.0         344    --     --     --     --     159        --     --   --     --    --
  1430    5050      5E     85  12.8C  7.6                                      3.18                          9AF   --
                                                                                                                                          S

10/04/77  5050            8.5  58.0   7.4          --     --     --     --      --        --     --   --     --    --
  1400    5050      5E     97  14.4C                                                                         1AF   --

04/11/78  5050                              222    --     --     --     --      97        --     --   --     --    --
  1300    5050                        7.5                                      1.94                         24AF   --
                                                                                                                                          S

04/11/78  5050            8.7  60.8   8.4          --     --     --     --      --        --     --   --     --    --
  1345    5050     200E   102  16.0C                                                                               --

05/22/78  5050                 61.0   7.4   175    --     --     14     --      81        --    2.1   --    .10    --                60
          5050      5E         16.1C  7.9   195                 .61            1.62             .06                --
                                                                 34                                                                       S

06/28/78  5050            6.2  61.0F  7.4   195    --     --     --     --      --        --     --   --     --    --
  0515    5050             73  16.1C  7.7                                                                    9AF   --
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MINERAL ANALYSES OF SURFACE WATER

A1 4010.00 PIT R SF A ALTURAS

A2RE2 CONTINUED

DATE TIME	SAMPLER LAB	G.H. O DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CA	MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
06/28/78	5050		6.2	63.0F	7.3	209	--	--	18	--	103	--	2.5	--	.10	--		71		
0915	5050		75	17.2C	7.7				.78		2.06		.07		10AF	--				
									35											S
06/28/78	5050		7.9	67.0	7.8	198	--	--	--	--	--	--	--	--	--	--				
1410	5050		100	19.4C											6AF	--				
06/28/78	5050		8.8	64.0F	7.9	186	--	--	--	--	--	--	--	--	--	--				
1835	5050		107	17.8C											6AF	--				
06/28/78	5050		7.6	63.0F	7.5	184	--	--	--	--	--	--	--	--	--	--				
2110	5050		92	17.2C											7AF	--				
06/29/78	5050		6.9	61.5F	7.5	185	--	--	--	--	--	--	--	--	--	--				
0115	5050		82	16.4C											6AF	--				
07/27/78	5050		6.5	78.1F	7.9	232	--	--	--	--	--	--	--	--	--	--				
1500	5050		92	25.6C											17AF	--				
08/02/78	5050		5.9	67.0F	7.4	170	--	--	--	--	--	--	--	--	--	--				
0515	5050		74	19.4C											18AF	--				
08/02/78	5050		5.8	72.0F	7.2	171	--	--	12	--	82	--	.0	--	.00	--		57		
0920	5050		77	22.2C	8.0				.52		1.64		.00		10AF	--				
									31											S
08/02/78	5050		6.2	79.0F	7.3	158	--	--	--	--	--	--	--	--	--	--				
1325	5050		89	26.1C											14AF	--				
08/02/78	5050		6.5	78.1F	7.6	161	--	--	--	--	--	--	--	--	--	--				
1905	5050		92	25.6C											17AF	--				
08/02/78	5050		6.2	75.0F	7.8	166	--	--	--	--	--	--	--	--	--	--				
2130	5050		85	23.9C											18AF	--				
08/03/78	5050		5.8	72.0F	7.5	161	--	--	--	--	--	--	--	--	--	--				
0130	5050		77	22.2C											17AF	--				

MINERAL ANALYSES OF SURFACE WATER

DATE	SAMPLER	G.H.	DO	TEMP	FIELD LABORATORY		MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE				MILLIGRAMS PER LITER					
TIME	LAB	Q DEPTH	SAT		PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
	A1	4010.00			PIT R SF A ALTURAS							A2$_{3}$E2 CONTINUED								
10/26/78 0745	5050 5050	20E	9.6 92	44.6F 7.0C	7.4		--	--	--	--	--	--	--	--	--	-- --				
04/05/79 1300	5050 5050	35E	9.0 102	57.6F 14.2C	8.0		--	--	--	--	--	--	--	--	--	-- --				
05/14/79 1515.	5050 5050		8.3 110	71.4F 21.9C	7.7	194	--	--	--	--	--	--	--	--	-- 14AF	-- --				
05/14/79 1910	5050 5050		7.8 101	69.4F 20.8C	7.6	191	--	--	--	--	--	--	--	--	-- 11AF	-- --				
05/14/79 2315	5050 5050		6.8 85	66.7F 19.3C	7.9	200 193	--	--	--	--	--	--	--	--	-- 2AF	-- --				
05/15/79 0315	5050 5050		6.2 76	64.4F 18.0C	7.7 7.6	190 189	--	--	--	--	83 1.66	--	--	--	-- 13AF	-- --				S
05/15/79 0700	5050 5050		6.1 74	63.5 17.5C	7.4	193	--	--	--	--	--	--	--	--	-- 17AF	-- --				S
05/15/79 1100	5050 5050		6.3 79	66.2 19.0C	7.3 7.5	196	--	--	--	--	86 1.72	--	--	--	-- 11AF	-- --				S
05/16/79 0830	5050 5050	100E	6.1 74	63.0 17.2C	7.4	200	--	--	--	--	--	--	--	--	--	-- --				S
06/25/79 1215	5050 5050	50E	6.3 87	75.2 24.0C	7.6	220 226	--	--	--	--	--	--	.7 .02	--	-- 8AF	-- --				S
06/25/79 1610	5050 5050		7.5 107	78.8 26.0C	7.9 8.0	220 225	--	--	--	--	100 2.00	--	.8 .02	--	-- 9AF	-- --				S
06/25/79 2005	5050 5050		7.2 99	75.2F 24.0C	8.2	220 221	--	--	--	--	--	--	.8 .02	--	-- 10AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 4010.00 PIT R SF A ALTURAS

A2,E2 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
06/26/79 0010	5050 5050		6.8 90	71.6F 22.0C	8.3	215 219	--	--	--	--	--	--	.6 .02	--	-- 10AF	-- --				S
06/26/79 0410	5050 5050		6.0 74	65.3 18.5C	7.8 8.0	210 223	--	--	--	--	92 1.84	--	.8 .02	--	-- 9AF	-- --				S
06/26/79 0815	5050 5050	50E	5.6 71	67.1 19.5	7.5	230 223	--	--	--	--	--	--	.8 .02	--	-- 9AF	-- --				
07/26/79 1100	5050 5050	30E		72.5F 22.5C		204	--	--	--	--	--	--	--	--	--	-- --				S
08/15/79 0910	5050 5050		5.4 65	62.6 17.0C	7.3	245 245	--	--	--	--	--	--	--	--	-- 5AF	-- --				S
08/15/79 1310	5050 5050		5.7 72	67.3 19.6C	7.4	250 247	--	--	--	--	--	--	--	--	-- 4AF	-- --				
08/15/79 1710	5050 5050		5.5 71	69.4F 20.8	7.4	260 249	--	--	--	--	90 1.80	--	1.3 .04	--	-- 5AF	-- --				S
08/15/79 2115	5050 5050		5.8 71	64.4 18.0C	7.6	250 243	--	--	--	--	--	--	--	--	-- 12AF	-- --				S
08/16/79 0110	5050 5050		5.8 70	62.6 17.0C	7.6	235 242	--	--	--	--	--	--	--	--	-- 7AF	-- --				S
08/16/79 0515	5050 5050		5.9 70	61.3 16.3C	7.3	230 243	--	--	--	--	89 1.78	--	1.0 .03	--	-- 12AF	-- --				S
08/16/79 1030	5050 5050		5.5 65	61.5 16.4C	7.6 8.0	240 242	--	--	21 .91 37	--	106 2.12	--	6.0 .17	--	.10 10AF	-- --		76		S
10/22/79 0900	5050 5050	50E	8.9 83	43.2 6.2C	7.3 7.6	285 280	--	--	--	--	124 2.48	--	--	--	-- 12AF	-- --				S

MINERAL ANALYSES OF SURFACE WATER

MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE — MILLIGRAMS PER LITER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
	A1	4010.00		PIT R SF A ALTURAS								A23E2 CONTINUED								
10/22/79	5050		9.4	45.3F	7.9	275	--	--	--	--	--	--	--	--	--	--				
1305	5050		91	7.4C		271									12AF	--				
																				S
10/22/79	5050		9.2	46.0F	7.5	290	--	--	--	--	--	--	--	--	--	--				
1720	5050		90	7.8C		274									13AF	--				
																				S
10/22/79	5050		9.0	45.5	7.6	295	--	--	--	--	--	--	--	--	--	--				
2110	5050		87	7.5C		278									12AF	--				
																				S
10/23/79	5050		8.7	43.9	7.8	270	--	--	--	--	--	--	--	--	--	--				
0410	5050		82	6.6C		273									12AF	--				
																				S
10/23/79	5050		8.6	43.3	7.9	270	--	--	--	--	--	--	--	--	--	--				
0540	5050		81	6.3C		273									12AF	--				
10/23/79	5050		8.7	44.1F	7.6	275	--	--	27	--	167	--	2.0	--	.10	--		123		
0710	5050	50E	83	6.7C	7.6	276			1.17		3.34		.06		12AF	--				
									32											S
10/24/79	5050			45.5	7.8	277	--	--	--	--	122	--	--	--	--	--				
0730	5050	40E		7.5C							2.44				11AF	--				
																				S
01/17/80	5050		7.7	41.0	7.3	220	14	5.0	22	5.5	73	--	5.0	--	.20	--		56	1.3	
1320	5050		70	5.0C	7.8	214	.70	.41	.96	.14	1.46		.14		120A	--		0	1.5	
							32	19	43	6										S
	A1	4014.00		PIT R SF A JONES LANE								A23E2								
05/15/79	5050		5.8	62.1F	7.5	200	--	--	--	--	--	--	--	--	--	--				
0715	5050	30E	69	16.7C												--				
																				S
05/15/79	5050		5.8	68.0F	7.2	180	--	--	--	--	--	--	--	--	--	--				
1320	5050	30E	74	20.0C												--				
																				S
05/15/79	5050			70.0F		170	--	--	--	--	--	--	--	--	--	--				
1410	5050			21.1C												--				
																				S

MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MG	NA	K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
A1 4014.00							PIT R SF A JONES LANE					A23E2 CONTINUED								
06/26/79 0940	5050 5050	 25E	5.0 64	69.1F 20.6C	7.1 9.2	205 205	--	--	--	--	--	--	.5 .01	--	-- 6AF	-- --				S
10/23/79 0745	5050 5050				7.7 10.0	243	--	--	--	--	--	--	--	--	-- 18AF	-- --				
01/17/80 1510	5050 5050		8.8 80	41.0F 5.0C	7.3 7.8	340 331	19 .95 29	7.0 .58 18	36 1.57 48	7.6 .19 6	82 1.64	--	14 .39	--	.00 140A	-- --		76 0	1.8 2.4	S
A1 4015.00							WESTSIDE CA A JONES LANE					A23E2								
11/17/59 1345	5050 5050	 3E	12.4 121	46.0F 7.8C	 7.9	 232	17 .85 36	5.2 .43 18	21 .91 38	7.1 .18 8	107 2.14 93	3.0 .06 3	3.4 .10 4	.9 .01	.02	.2 36.0	 158	64 0	1.1 1.6	
05/15/79 0730	5050 5050	 10E	5.9 69	60.1F 15.6C	7.8	150	--	--	--	--	--	--	--	--	--	-- --				
05/15/79 1330	5050 5050		8.4 112	72.0F 22.2C	8.6	150	--	--	--	--	--	--	--	--	--	-- --				
06/26/79 0950	5050 5050	 10E	6.6 85	69.1F 20.6C	7.5	160 141	--	--	--	--	62 1.24	--	.4 .01	--	-- 15AF	-- --				S
10/23/79 0800	5050 5050				7.7	208	--	--	--	--	98 1.96	--	--	--	-- 23AF	-- --				S
01/17/80 1500	5050 5050		9.9 89	40.5F 4.7C	7.5 7.9	140 136	10 .50 32	4.0 .33 21	14 .61 40	3.9 .10 6	60 1.20	--	3.0 .08	--	.10 160A	-- --		42 0	0.9 0.9	S

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                                              MINERAL ANALYSES OF SURFACE WATER

 DATE     SAMPLER  G.H.   DO     TEMP    FIELD                            MILLIGRAMS PER LITER          MILLIGRAMS PER LITER
 TIME     LAB      Q      SAT           LABORATORY  MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                   DEPTH                 PH    EC                          PERCENT REACTANCE VALUE     B      F      TDS    TH    SAR    REM
                                                    CA    MG    NA    K    CACO3     SO4   CL    NO3   TURB  SIO2    SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              A1  4016.00          EASTSIDE CA A JONES LANE                  A23E2

11/17/59  5050            12.6  48.0F                16   4.9    18   5.4     93       4.4   4.6   .9   .06    .2              60   1.0
  1410    5050       3E    126   8.9C  7.9   210    .80   .40   .78   .14   1.86       .09   .13  .01          37.0   147        0   1.3
                                                     38    19    27     7     89         4     6

05/15/79  5050             7.0  61.0F  7.8   160    --    --    --    --     --        --    --   --    --     --
  0700    5050      50E     82  16.1C                                                                          --

05/15/79  5050             8.4  69.1F  7.4   160    --    --    --    --     --        --    --   --    --     --
  1300    5050      50E    108  20.6C                                                                          --

05/15/79  5050                  64.9F  8.2   130    --    --    --    --     --        --    --   --    --     --
  1400    5050                  18.3C                                                                          --

06/26/79  5050             6.1  70.0F  7.6   220    --    --    --    --     79        --    .5   --    --     --
  0930    5050      10E     79  21.1C        205                            1.58             .01        8AF     --                            S

10/23/79  5050                         8.0   259    --    --    --    --    121        --    --   --    --     --
  0700    5050                                                              2.42                        4AF     --                            S

01/17/80  5050            10.2  39.2   7.3   160    10   4.0    14   3.8     60        --   3.0   --   .10     --              42   0.9
  1515    5050      20E     90   4.0C  7.8   146   .50   .33   .61   .10   1.20             .08        90A     --               0   0.9
                                                     32    21    40     6                                                                     S

              A1  4017.00          EASTSIDE CA A MCARTHUR RD                 A23E2

05/15/79  5050                  64.9F  8.2   130    --    --    --    --     --        --    --   --    --     --
  1400    5050      50E         18.3C                                                                          --                            S

06/26/79  5050             8.3  70.0   8.2   190    --    --    --    --     87        --    .5   --    --     --
  1030    5050      15E    108  21.1C        184                            1.74             .01        6AF     --                            S
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                                              MINERAL ANALYSES OF SURFACE WATER
 DATE      SAMPLER  G.H.   DO      TEMP   FIELD                                  MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME       LAB     Q      SAT           LABORATORY   MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                   DEPTH                   PH    EC                             PERCENT REACTANCE VALUE          B      F     TDS      TH     SAR      REM
                                                      CA     MG     NA     K     CACO3        SO4    CL    NO3   TURB  SIO2    SUM      NCH    ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              A1   4018.00          PIT R SF A MCARTHUR RD                            A23E2

05/15/79   5050                   70.0F          170    --     --     --     --     --          --     --    --     --    --
 1410      5050     30E           21.1C                                                                                   --
                                                                                                                                                   S

06/26/79   5050              6.5  72.0    7.2    180    --     --     --     --      81         --     .5    --     --    --
 1030      5050     10E       86  22.2C          181                               1.62                .01         4AF    --
                                                                                                                                                   S

              A1   4019.00          WESTSIDE CA A MCARTHUR RD                         A23E2

05/15/79   5050              7.7  64.9F   7.2    120    --     --     --     --     --          --     --    --     --    --
 1420      5050               95  18.3C                                                                                   --

06/26/79   5050              6.7  70.0F   7.3    150    --     --     --     --      60         --     .4    --     --    --
 1000      5050               87  21.1C          146                               1.20                .01         2AF    --
                                                                                                                                                   S

              A1   4020.00          WESTSIDE CA NR CROOKS CN C                        A23E2

11/17/59   5050             11.4  44.0F                  13    4.7     18    6.5      94         .3    2.6   1.1    .03    .2               52     1.1
 1510      5050      1E      108   6.7C   7.9    198    .65    .39    .78    .17    1.88        .01    .07   .02          38.0     141       0     1.3
                                                         33     20     39      9      95          1      4     1

              A1   4250.00          PINE C NR MODOC NATIONAL WLDL REF                 A23E2

09/02/59   5050                   60.0-                 7.5    2.1    4.2    2.2      36         .3     .6    .9    .03    .1               27     0.4
 1245      5050     10E           15.5C   6.8     80    .37    .17    .18    .06     .72        .01    .02   .01          36.0      75       0     0.2
                                                         47     22     23      8      95          1      3     1

05/11/60   5050              8.9  56.0F   7.3           6.6    2.3    3.0    2.0      32        1.0     .1   1.0    .05    .0               26     0.3
 1400      5050      8E       99  13.3C   7.5     73    .33    .19    .13    .05     .64        .02    .00   .02          32.0      67       0     0.1
                                                         47     27     19      7      94          3            3

09/14/60   5050              8.2  58.0F   7.3           7.0    2.1    4.0    2.1      36         .0     .3    .4    .04    .1               26     0.3
 1125      5050      6E       94  14.4C   7.5     74    .35    .17    .17    .05     .72        .00    .01   .01          36.0      74       0     0.2
                                                         47     23     23      7      97                 1     1

04/18/61   5050              9.4  48.0F   7.8           3.0    4.2    3.8    2.0      32         .2     .5   1.1    .03    .1               25     0.3
 1100      5050      5E       95   8.9C   7.3     71    .15    .35    .17    .05     .64        .00    .01   .02          32.0      66       0     0.2
                                                         21     49     24      7      96                 1     3
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MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE								MILLIGRAMS PER LITER					REM
							CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	
	A1	4400.00			PIT R SF NR LIKELY							A23E2								
05/03/56	5050	3.37					8.6	2.8	3.9	1.9	38	6.0	.4	.6	.00	.0		33	0.3	
1115	5050	243			6.6	85	.43	.23	.17	.05	.76	.12	.01	.01		27.0	74	0	0.2	
							49	26	19	6	84	13	1	1						
10/24/57	5050		10.1	53.0F	8.3		11	4.0	5.7	2.6	58	.0	.0	.0	.06	.1		44	0.4	
1530	5050		109	11.7C	7.9	109	.55	.33	.25	.07	1.16	.00	.00	.00		35.0	93	0	0.4	
							46	28	21	6	100									
08/13/58	5050	3.05	8.2	66.0F	7.7		12	3.6	9.0	3.8	68	.0	1.0	.9	.10	.3		45	0.6	
1235	5000	176	103	18.9C	7.8	140	.60	.30	.39	.10	1.36	.00	.03	.01		33.0	104	0	0.6	
							43	22	28	7	97		2	1						
09/10/58	5050	2.41	8.0	69.1F	7.9		11	6.2	7.5	4.5	66	8.6	.5	1.1	.00	.1		53	0.4	
1230	5000	68	104	20.6C	7.7	138	.55	.51	.33	.12	1.32	.18	.01	.02	5E	36.0	115	0	0.5	
							36	34	22	8	86	12	1	1						
10/15/58	5050	2.02	8.8	57.9F	7.9		9.6	3.9	4.9	2.3	52	.0	1.0	.1	.00	.0		40	0.3	
1450	5000	30	101	14.4C	7.5	107	.48	.32	.21	.06	1.04	.00	.03	.00		35.0	88	0	0.3	
							45	30	20	6	97		3							
11/12/58	5050	2.07	11.0	42.1F	7.3		10	4.6	4.8	2.6	53	1.9	1.2	.4	.00	.0		44	0.3	
1430	5000	34	102	5.6C	7.8	102	.50	.38	.21	.07	1.06	.04	.03	.01		39.0	96	0	0.3	
							43	33	18	6	93	4	3	1						
02/05/59	5050	2.06	12.2	32.0F	7.6		11	4.5	5.2	1.9	57	1.0	1.8	.2	.00	.1		46	0.3	
1030	5000	35	97	0.0C	7.7	112	.55	.37	.23	.05	1.14	.02	.05	.00		35.0	95	0	0.3	
							46	31	19	4	94	2	4							
03/05/59	5050	1.69	9.4	51.1F	8.3		8.4	5.4	6.4	2.4	53	3.8	2.3	.6	.10	.1		43	0.4	
1535	5000	12	99	10.6C	7.6	112	.42	.44	.28	.06	1.06	.08	.06	.01		36.0	97	0	0.4	
							35	37	23	5	88	7	5	1						
04/09/59	5050	2.60	11.0	41.0F	7.3		9.9	4.4	4.8	2.4	52	1.3	1.1	.3	.00	.0		42	0.3	
0715	5000	93	100	5.0C	7.8	107	.49	.36	.21	.06	1.04	.03	.03	.00		31.0	86	0	0.3	
							44	32	19	5	95	3	3							
05/07/59	5050	2.38	8.9	57.0F	8.1		12	4.4	4.8	2.4	58	1.9	1.0	.8	.10	.1		48	0.3	
1215	5000	66	101	13.9C	7.9	114	.60	.36	.21	.06	1.16	.04	.03	.01	2E	33.0	95	0	0.3	
							49	29	17	5	94	3	2	1						
06/05/59	5050	2.67	8.5	62.1F	7.9		--	--	8.4	--	64	--	1.0	--	.00	--		50		
0900	5000	104	102	16.7C	8.1	131			.37		1.28		.03		25E	--				S
									27											
07/16/59	5050	2.09	7.3	78.1F	8.1		14	3.9	9.0	4.1	74	1.0	1.0	1.5	.00	.2		51	0.5	
1445	5000	37	104	25.6C	7.6	138	.70	.32	.39	.10	1.48	.02	.03	.02		38.0	117	0	0.6	
							46	21	26	7	95	1	2	1						

MINERAL ANALYSES OF SURFACE WATER

A1 4400.00 PIT R SF NR LIKELY $A_{23}E_2$ CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
08/13/59	5050	2.99	7.8	64.9F	7.7		15	5.5	11	4.7	78	6.0	4.5	.3	.10	.2		60	0.6	
0725	5000	162	97	18.3C	8.0	162	.75	.45	.48	.12	1.56	.12	.13	.00		38.0	132	0	0.8	
							42	25	27	7	86	7	7							
09/10/59	5050	2.02	7.8	62.1F	8.0		15	6.1	12	4.4	80	5.0	5.0	.4	.10	.0		63	0.7	
0700	5000	32	94	16.7C	7.8	172	.75	.50	.52	.11	1.60	.10	.14	.01	45E	40.0	136	0	0.8	
							40	27	28	6	86	5	8	1						
10/15/59	5050	1.98	9.6	50.0F	7.9		13	4.7	8.6	3.1	62	2.0	7.5	.0	.00	.2		52	0.5	
0900	5000	26	99	10.0C	7.8	127	.65	.39	.37	.08	1.24	.04	.21	.00		35.0	111	0	0.6	
							44	26	25	5	83	3	14							
11/12/59	5050	1.94	10.5	42.1F	7.5		11	4.0	6.9	2.1	58	1.0	.5	.2	.00	.2		44	0.5	
1315	5000	24	97	5.6C	7.7	111	.55	.33	.30	.05	1.16	.02	.01	.00		35.0	95	0	0.4	
							45	27	24	4	97	2	1							
12/10/59	5050	1.80	12.0	32.0F	7.3		11	3.5	7.0	4.4	52	1.0	5.5	.4	.00	.0		42	0.5	
0950	5000	15	95	0.0C	7.6	105	.55	.29	.30	.11	1.04	.02	.16	.01		36.0	100	0	0.4	
							44	23	24	9	85	2	13	1						
01/07/60	5050	2.83	12.0	32.0F	7.3		--	--	4.8	--	43	--	1.5	--	.10	--		37		
0810	5000	24	95	0.0C	7.6	96			.21		.86		.04		6E	--				
									22											S
02/11/60	5050	1.88	11.7	32.0F	7.3		--	--	6.0	--	49	--	.8	--	.10	--		52		
0800	5000	24	93	0.0C	7.3	127			.26		.98		.02		40E	--				
									20											S
03/11/60	5050	1.72	11.3	37.0F	7.3		--	--	6.7	--	52	--	2.0	--	.10	--		48		
0955	5000	11	97	2.8C	7.6	127			.29		1.04		.06		35E	--				
									23											S
04/13/60	5050	2.22	8.6	57.0F	7.7		--	--	3.9	--	42	--	1.9	--	.00	--		37		
1710	5000	47	97	13.9C	8.0	88			.17		.84		.05		5E	--				
									19											S
05/11/60	5050	2.68	8.3	59.0F	7.7		8.5	2.2	3.6	1.9	38	1.0	1.0	.6	.10	.2		30	0.3	
1645	5000	105	96	15.0C	7.5	83	.42	.18	.16	.05	.76	.02	.03	.01	15E	30.0	72	0	0.2	
							52	22	20	6	93	2	4	1						
06/08/60	5050	2.91	7.9	63.0F	7.7		--	--	4.5	--	48	--	3.0	--	.00	--		38		
1625	5000	146	96	17.2C	7.7	100			.20		.96		.08		5E	--				
									21											S
07/07/60	5050	2.26	8.0	69.1F	8.1		--	--	6.4	--	61	--	.5	--	.00	--		47		
1210	5000	50	104	20.6C	7.9	122			.28		1.22		.01		25E	--				
									23											S

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                                      MINERAL ANALYSES OF SURFACE WATER

DATE     SAMPLER  G.H.    DO    TEMP   FIELD                                 MILLIGRAMS PER LITER          MILLIGRAMS PER LITER
TIME     LAB        Q    SAT         LABORATORY   MINERAL CONSTITUENTS IN    MILLIEQUIVALENTS PER LITER
                DEPTH                  PH    EC                              PERCENT REACTANCE VALUE     B      F      TDS    TH    SAR    REM
                                                   CA     MG     NA     K     CACO3     SO4    CL   NO3  TURB   SIO2    SUM   NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                AI   4400.00         PIT R SF NR LIKELY                               A23E2 CONTINUED

08/11/60 5050     2.97   7.8   71.1F   8.1           --     --    9.5    --      71      --   1.0    --   .10     --              56
 1100    5000      159   103   21.7C   7.8   149                  .41          1.42            .03          40E     --
                                                                   27                                                                     S

09/08/60 5050     2.44   8.1   66.9F   8.1            13    5.2     12   4.5      72     7.0   2.2   1.6   .00     .0              54    0.7
 1320    5000       71   103   19.4C   7.9   150     .65    .43    .52   .12    1.44     .15   .06   .03   60E   36.0     125      0    0.8
                                                      38     25     30     7      86       9     4     2

10/13/60 5050     2.33   9.8   50.0F   7.7           --     --     10    --      65      --    .0    --   .10     --              53
 1155    5000       59   101   10.0C   8.0   145                  .44          1.30            .00          60E     --
                                                                   29                                                                     S

11/10/60 5050     1.96  10.9    41.0   7.5           --     --    5.4    --      52      --    .8    --   .00     --              41
 1135    5000       25   100    5.0C   7.6   104                  .23          1.04            .02           2E     --
                                                                   22                                                                     S

12/15/60 5050     1.93  11.8    36.0   7.5           --     --    6.2    --      52      --   2.7    --   .00     --              44
 1140    5000      5.0   100    2.2C   7.7   102                  .27          1.04            .08          25E     --
                                                                   23                                                                     S

01/13/61 5050     1.90  10.1    32.0   7.3           --     --    5.7    --      57      --    .0    --   .00     --              43
 0745    5000       19    80    0.0C   7.8   103                  .25          1.14            .00           4E     --
                                                                   23                                                                     S

02/16/61 5050     1.65  10.9    42.1   8.1           --     --    8.1    --      61      --    .0    --   .10     --              50
 1325    5000      8.0   101    5.6C   8.0   134                  .35          1.22            .00          10E     --
                                                                   26                                                                     S

03/09/61 5050     1.57  10.5    41.0   8.1           --     --     11    --      60      --   1.0    --   .10     --              46
 1145    5000      5.0    96    5.0C   8.0   121                  .48          1.20            .03           3E     --
                                                                   34                                                                     S

04/13/61 5050     2.22  11.3    39.9   7.6           --     --    4.7    --      40      --   1.0    --   .00     --              36
 0800    5000       47   102    4.4C   7.9    87                  .20           .80            .03           2E     --
                                                                   22                                                                     S

05/11/61 5050     2.78  10.4    48.0   8.1           9.2    4.4    5.1   2.4      52     1.6   1.5    .8   .00     .1              41    0.3
 1140    5000      122   105    8.9C   7.5   110     .46    .36    .22   .06    1.04     .03   .04   .01   10E   33.0      89      0    0.3
                                                      42     33     20     5      93       3     4     1

06/15/61 5050     2.26   7.4   70.0F   7.9           --     --    3.6    --      44      --    .1    --   .00     --              37
 1130    5000       52    97   21.1C   7.9    89                  .16           .88            .00           6E     --
                                                                   16                                                                     S

07/13/61 5050     2.38   7.8   66.9F   7.9           --     --     10    --      68      --   1.5    --   .10     --              56
 0930    5000       65    99   19.4C   8.1   151                  .44          1.36            .04          30E     --
                                                                   28                                                                     S
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MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY pH	EC	MINERAL CONSTITUENTS IN CA	MG	NA	K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	SO4	CL	NO3	B TURB	MILLIGRAMS PER LITER F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
	A1	4400.00		PIT R SF NR LIKELY							A23E2 CONTINUED									
08/02/61	5050	2.95	7.8	71.1F	8.1		--	--	12	--	78	--	3.5	--	.20	--		63		
1315	5000	154	103	21.7C	8.1	174			.52		1.56		.10		37E	--				
									29											S
09/13/61	5050	1.94	7.9	70.0	8.4		16	6.3	13	4.4	80	9.0	4.5	.6	.00	.1		66	0.7	
1440	5000	23	104	21.1C	8.5	183	.80	.52	.57	.11	1.60	.19	.13	.01	75E	38.0	140	0	0.9	
							40	26	29	6	83	10	7	1						
10/05/61	5050	2.94	9.4	55.9F	7.6		--	--	14	--	87	--	3.0	--	.10	--		70		
0800	5000	150	105	13.3C	8.1	201			.61		1.74		.08		40E	--				
									30											S
11/15/61	5050	1.91	11.6	37.0	7.6		--	--	4.2	--	46	--	.2	--	.00	--		38		
1345	5000	19	100	2.8C	8.0	95			.18		.92		.01		4E	--				
									19											S
12/06/61	5050	1.54	11.7	37.0	7.8		--	--	6.1	--	51	--	1.2	--	.00	--		44		
1430	5000	5.0	101	2.8C	7.9	102			.27		1.02		.03		3E	--				
									23											S
01/10/62	5050	2.00	12.4	32.0	7.5		--	--	4.8	--	53	--	.0	--	.00	--		43		
1210	5000	12	98	0.0C	8.0	106			.21		1.06		.00		2E	--				
									20											S
02/13/62	5050	1.64	10.7	43.0	7.9		--	--	7.1	--	52	--	1.8	--	.00	--		50		
1325	5000	8.0	101	6.1C	7.6	135			.31		1.04		.05		15E	--				
									24											S
03/13/62	5050	2.03	12.0	33.1	7.7		--	--	8.3	--	63	--	2.2	--	.10	--		53		
1120	5000	30	97	0.6C	7.8	138			.36		1.26		.06		10E	--				
									25											S
04/10/62	5050	1.89	8.6	59.0F	8.3		--	--	6.6	--	44	--	.8	--	.10	--		36		
1510	5000	20	100	15.0C	8.1	92			.29		.88		.02		13E	--				
									29											S
05/02/62	5050	2.57	8.4	61.0	8.1		8.4	3.3	4.6	2.1	42	.8	.9	.4	.00	.1		35	0.3	
1500	5000	89	100	16.1C	7.5	88	.42	.27	.20	.05	.84	.02	.03	.01	8E	28.0	74	0	0.3	
							45	29	21	5	93	2	3	1						
06/14/62	5050	2.85	8.7	57.0F	8.0		--	--	5.7	--	51	--	1.5	--	.00	--		44		
1125	5000	134	98	13.9C	7.9	105			.25		1.02		.04		10E	--				
									22											S
07/12/62	5050	2.28	8.8	55.9F			--	--	7.9	--	62	--	1.8	--	.00	--		50		
0745	5000	51	98	13.3C	8.0	132			.34		1.24		.05		5E	--				
									25											S

MINERAL ANALYSES OF SURFACE WATER

A1 4400.00 PIT R SF NR LIKELY A23E2 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
08/15/62 1420	5050 5000	2.66 102	6.8 89	70.0F 21.1C	8.4 8.0	144	--	--	9.9 .43 29	--	68 1.36	--	2.5 .07	--	.00 10E	-- --		52		S
09/18/62 1135	5050 5000	2.06 32	8.5 109	68.0F 20.0C	8.4 8.1	155	14 .70 43	4.4 .36 22	11 .48 29	4.0 .10 6	71 1.42 .87	5.0 .10 6	2.5 .07 4	2.4 .04 2	.00 20E	.1 31.0	138 117	53 0	0.7 0.7	E
10/17/62 0920	5050 5000	2.33 59	11.5 107	42.1F 5.6C	7.4 7.5	117	--	--	6.1 .27 21	--	51 1.02	--	1.8 .05	--	.00 8E	-- --		50		S
11/20/62 0955	5050 5000	2.14 40	11.6 103	39.0F 3.9C	7.5 7.8	102	--	--	5.7 .25 24	--	52 1.04	--	.8 .02	--	.00 2E	-- --		39		S
12/17/62 1550	5050 5000	2.44 70	11.1 103	42.1 5.6C	7.5 8.0	101	--	--	5.1 .22 22	--	49 .98	--	.6 .02	--	.00 4E	-- --		39		S
01/14/63 1415	5050 5000	3.00 19	12.7 103	33.1 0.6C	7.4 8.0	104	--	--	5.3 .23 22	--	52 1.04	--	1.4 .04	--	.00 2E	-- --		40		S
02/18/63 1450	5050 5000	1.78 14	10.6 101	44.1F 6.7C	7.5 7.9	107	--	--	6.3 .27 25	--	52 1.04	--	2.0 .06	--	.00 4E	-- --		40		S
03/18/63 1545	5050 5000	1.62 7.0	9.9 105	52.0 11.1C	8.0 8.1	107	--	--	6.4 .28 26	--	56 1.12	--	1.5 .04	--	.00 1E	-- --		40		S
04/15/63 1445	5050 5000	2.61 93	10.6 103	45.0 7.2C	7.6 7.9	100	--	--	5.7 .25 25	--	49 .98	--	.3 .01	--	.10 20E	-- --		38		S
05/13/63 1350	5050 5000	3.66 330	9.5 101	52.0 11.1C	7.7 7.4	111	10 .50 42	4.6 .38 32	5.7 .25 21	2.4 .06 5	52 1.04 90	2.0 .04 3	1.0 .03 3	2.5 .04 3	.00 20E	.0 29.0	118 88	44 0	0.4 0.3	E T
06/05/63 0930	5050 5000	3.60 300	9.6 98	48.9F 9.4C	7.4 7.9	92	--	--	4.3 .19 18	--	44 .88	--	.8 .02	--	.00 35E	-- --		44		S
07/10/63 0840	5050 5000	2.15 50	9.3 105	57.0F 13.9C	7.8 7.8	89	--	--	4.5 .20 22	--	43 .86	--	.6 .02	--	.00 4E	-- --		36		S

MINERAL ANALYSES OF SURFACE WATER

A1 4400.00 PIT R SF NR LIKELY

A23E2 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	R TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE									MILLIGRAMS PER LITER			
08/08/63 1330	5050 5000	3.10 185	8.2 102	64.9F 18.3C	7.3 8.1	137	--	--	8.5 .37 26	--	63 1.26	--	1.2 .03	--	.00 50E	-- --		52		S
09/12/63 0940	5050 5000	2.66 100	8.8 109	64.9F 18.3C	8.0 7.5	146	13 .65 42	5.0 .41 27	8.6 .37 24	4.3 .11 7	66 1.32 89	4.0 .08 5	1.5 .04 3	3.2 .05 3	.00 30E	.2 32.0	115 111	53 0	0.5 0.6	E
10/10/63 0850	5050 5000	2.00 28	10.3 105	48.9F 9.4C	7.9 8.0	111	--	--	5.0 .22 20	--	56 1.12	--	.5 .01	--	.00 2E	-- --		44		S
11/06/63 1400	5050 5000	2.23 44	10.9 98	39.9 4.4C	7.7 8.0	126	--	--	5.9 .26 21	--	62 1.24	--	1.8 .05	--	.00 2E	-- --		49		S
12/04/63 1440	5050 5000	2.09 32	12.0 102	36.0 2.2C	7.6 7.7	103	--	--	5.0 .22 22	--	48 .96	--	.5 .01	--	.00 6E	-- --		40		S
01/08/64 1125	5050 5000	2.10 36	11.2 92	34.0 1.1C	7.8 8.0	116	--	--	6.6 .29 24	--	53 1.06	--	1.2 .03	--	.00 1E	-- --		45		S
02/05/64 1520	5050 5000	2.34 46	12.4 100	33.1 0.6C	7.7 8.2	124	--	--	6.6 .29 22	--	62 1.24	--	1.2 .03	--	.00 4E	-- --		50		S
03/04/64 1050	5050 5000	2.00 26	12.0 106	39.0F 3.9C	8.3 8.2	108	--	--	5.8 .25 22	--	54 1.08	--	1.0 .03	--	.00 4E	-- --		44		S
04/09/64 0950	5050 5000	2.05 29	12.3 117	44.1F 6.7C	8.4 8.4	111	--	--	7.3 .32 27	--	54 1.08	--	.8 .02	--	.00 7E	-- --		44		S
05/06/64 0840	5050 5000	2.70 103	11.9 104	37.9 3.3C	7.8 8.0	98	10 .50 48	3.4 .28 27	4.9 .21 20	1.9 .05 5	45 .90 90	2.0 .04 4	.8 .02 2	2.2 .04 4	.00 5E	.1 31.0	91 83	39 0	0.3 0.3	E
06/11/64 0850	5050 5000	4.49 1.0	9.8 100	48.9F 9.4C	7.5 8.1	106	--	--	6.1 .27 24	--	52 1.04	--	1.0 .03	--	.00 15E	-- --		43		S
07/02/64 1240	5050 5000	2.75 122	8.3 103	64.9 18.3C	8.2 8.1	98	--	--	5.0 .22 22	--	46 .92	--	.5 .01	--	.00 2E	-- --		40		S

MINERAL ANALYSES OF SURFACE WATER

A1 4400.00 PIT R SF NR LIKELY

A23E2 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE										MILLIGRAMS PER LITER			
08/06/64 0905	5050 5000	3.03 168	8.1 102	66.0F 18.9C	8.1 8.3	138	--	--	8.8 .38 27	--	66 1.32	--	2.0 .06	--	.00 30E	-- --		51		S
09/02/64 0920	5050 5000	2.57 83	8.9 104	60.1 15.6C	8.2 7.5	147	14 .70 45	4.1 .34 22	9.3 .40 26	4.5 .12 8	66 1.32 89	4.0 .08 5	2.1 .06 4	2.1 .03 2	.10 30E	-- 33.0	110 113	52 0	0.6 0.6	E
10/07/64 0800	5050 5000	2.06 30	9.0 99	55.0F 12.8C	8.0 8.1	141	--	--	8.5 .37 26	--	68 1.36	--	1.2 .03	--	.00 20E	-- --		54		S
11/12/64 1040	5050 5000	2.12 35	10.9 94	37.0 2.8C	7.7 8.0	108	--	--	5.6 .24 23	--	52 1.04	--	.6 .02	--	.00 3E	-- --		41		S
12/09/64 1050	5050 5000	2.65 95	10.2 89	37.9 3.3C	7.7 7.6	120	--	--	6.6 .29 24	--	53 1.06	--	.9 .03	--	.10 10E	-- --		45		S
01/20/65 1000	5050 5000	2.60 85E	11.0 95	37 F 3 C	7.5 7.7	109	--	--	5.4 .23 21	--	52 1.04	--	1.0 .03	--	.00 4E	-- --		44		S
02/04/65 1005	5050 5000	2.95 140E	9.7 83	37 3 C	7.5 7.9	118	--	--	7.5 .33 27	--	53 1.06	--	1.3 .04	--	.00 40E	-- --		44		S
03/04/65 0955	5050 5000	2.19 48	10.2 92	40 4 C	7.9 7.8	112	--	--	5.5 .24 21	--	52 1.04	--	.5 .01	--	.00 5E	-- --		45		S
04/08/65 1000	5050 5000	2.36 410E	8.3 80	45 7 C	7.8 7.9	115	--	--	6.9 .30 25	--	54 1.08	--	.9 .03	--	.00 6E	-- --		45		S
05/05/65 1305	5050 5000	4.02 405E	9.4 93	47 8 C	7.6 7.8	91	11 .55 57	1.8 .15 16	4.9 .21 22	1.8 .05 5	39 .78 89	2.0 .04 5	.9 .03 3	1.9 .03 3	.00 30E	-- 29.0	85 77	35 0	0.4 0.3	E
06/17/65 0830	5050 5000	3.32 210E	7.8 80	49 F 9 C	7.5 8.1	88	--	--	4.2 .18 20	--	41 .82	--	.3 .01	--	.10 5E	-- --		36		S
07/15/65 1130	5050 5000	2.28 53	8.9 110	65 F 18 C	8.2 8.1	99	--	--	4.9 .21 20	--	48 .96	--	.5 .01	--	.00 5E	-- --		42		S

MINERAL ANALYSES OF SURFACE WATER

A1 4400.00 PIT R SF NR LIKELY A23E2 CONTINUED

							MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE								MILLIGRAMS PER LITER					
DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
08/12/65 1245	5050 5000	3.14 18	8.5 107	66 F 19 C	8.1 8.2	124	--	--	7.0 .30 25	--	57 1.14	--	5.6 .16	--	.00 30E	-- --		46		S
09/16/65 1000	5050 5000	2.49 72	9.6 111	59 15 C	8.1 8.2	136	12 .60 41	4.6 .38 26	9.0 .39 27	3.1 .08 6	62 1.24 90	4.0 .08 6	1.2 .03 2	1.9 .03 2	.10 25E	-- 32.0	106 105	49 0	0.6 0.6	E
10/06/65 0810	5050 5000	2.13 34E	9.9 97	46 F 8 C	7.7 8.1	106	--	--	5.6 .24 22	--	53 1.06	--	.5 .01	--	.00 2E	-- --		42		S
11/03/65 0820	5050 5000	2.07 32	10.9 102	43 F 6 C	7.5 8.2	100	--	--	5.0 .22 22	--	49 .98	--	.4 .01	--	.00 1E	-- --		40		S
12/16/65 1340	5050 5000	2.18 41E	12.9 104	33 1 C	7.7 8.0	112	--	--	5.6 .24 21	--	56 1.12	--	.6 .02	--	.00 2E	-- --		44		S
01/19/66 0910	5050 5000	2.36 28E	12.7 103	33 1 C	7.4 7.9	97	--	--	5.0 .22 20	--	51 1.02	--	.4 .01	--	.00 3E	-- --		43		S
02/09/66 0845	5050 5000	2.29 32E	12.5 101	33 F 1 C	7.4 8.1	106	--	--	5.3 .23 22	--	51 1.02	--	.6 .02	--	.10 2E	-- --		41		S
03/24/66 1010	5050 5000	2.63 93	11.6 109	43 6 C	8.0 8.2	130	--	--	8.6 .37 28	--	60 1.20	--	1.2 .03	--	.00 35E	-- --		47		S
04/19/66 1355	5050 5000	2.41 63	11.0 111	48 F 9 C	8.4 8.0	86	--	--	4.2 .18 21	--	41 .82	--	.3 .01	--	.00 5E	-- --		34		S
05/04/66 1515	5050 5000	2.84 120	8.6 101	60 F 16 C	8.1 7.9	123	12 .60 45	4.1 .34 26	7.0 .30 23	3.1 .08 6	59 1.18 93	3.0 .06 5	.8 .02 2	.8 .01 1	.00 10E	-- 29.0	126 95	47 0	0.4 0.4	E T
06/09/66 0930	5050 5000	2.85 144	9.2 108	60 F 16 C	8.2 8.2	145	--	--	8.7 .38 25	--	71 1.42	--	1.2 .03	--	.00 25E	-- --		57		S
07/05/66 1220	5050 5000	2.04 30	8.6 115	72 F 22 C	8.5 8.4	152	--	--	10 .44 28	--	73 1.46	--	1.3 .04	--	.00 35E	-- --		58		S

MINERAL ANALYSES OF SURFACE WATER

A1 4400.00 PIT R SF NR LIKELY

A23E2 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
08/15/66 1210	5050 5000	1.99 26	8.4 104	64.5F 18.0C	8.4 8.4	213	--	--	16 .70 32	--	94 1.88	--	4.6 .13	1.5 .02	.10 35E	-- --		75		S
09/07/66 1405	5050 5000	1.76 12	8.0 108	73 F 23 C	8.4 8.1	170	14 .70 39	6.0 .49 27	11 .48 27	4.5 .12 7	79 1.58 90	6.0 .12 7	1.5 .04 2	1.4 .02 1	.00 20E	-- 35.0	138 127	60 0	0.6 0.8	E
10/03/66 1610	5050 5000	1.85 17	8.4 98	68 F 16 C	8.4 7.8	170	13 .65 38	5.9 .49 29	10 .44 26	4.4 .11 7	77 1.54	--	2.1 .06	--	.00 5E	-- --		57 0	0.6 0.7	S
11/01/66 1200	5050 5000	1.85 18	10.7 109	49 F 9 C	7.6 7.5	103	9.8 .49 45	3.7 .30 27	5.5 .24 22	2.6 .07 6	51 1.02	--	.4 .01	--	.00 1E	-- --		40 0	0.4 0.3	S
12/07/66 1350	5050 5000	1.73 11	11.8 101	37 F 3 C	7.6 8.1	120	11 .55 43	4.5 .37 29	6.8 .30 23	2.7 .07 5	58 1.16	--	.9 .03	--	.00 2E	-- --		46 0	0.4 0.4	S
01/05/67 1600	5050 5000	2.04 31	12.0 97	33 1 C	7.4 7.8	106	10 .50 45	3.9 .32 29	5.7 .25 22	2.1 .05 4	52 1.04	--	.6 .02	--	.00 3E	-- --		41 0	0.4 0.3	S
02/15/67 1445	5050 5000	1.90 7E	12.1 96	32 0 C	7.9 8.0	122	11 .55 42	4.2 .35 27	7.8 .34 26	2.3 .06 5	58 1.16	--	1.0 .03	--	.00 10E	-- --		45 0	0.5 0.5	S
03/08/67 1245	5050 5000	1.76 14	10.8 115	52 11 C	8.2 8.1	108	10 .50 43	4.0 .33 28	6.4 .28 24	2.3 .06 5	54 1.08	--	.6 .02	--	.00 2E	-- --		42 0	0.4 0.4	S
04/03/67 1305	5050 5050	1.91 21	10.4 110	51.5 10.8C	8.3 7.9	120	11 .55 42	4.5 .37 28	7.3 .32 24	2.7 .07 5	58 1.16	--	1.0 .03	--	.00 10E	-- --		46 0	0.5 0.5	S
05/01/67 1155	5050 5000	1.76 13	10.2 116	57.5 14.2C	8.4 7.8	119	11 .55 42	4.5 .37 28	7.4 .32 25	2.5 .06 5	57 1.14 92	2.0 .04 3	1.1 .03 2	2.1 .03 2	.10 15E	-- 30.0	115 95	46 0	0.5 0.5	E
06/12/67 1050	5050 5000	4.15 452	9.2 105	57.5F 14.2C	8.0 7.9	91	8.7 .43 45	3.3 .27 28	4.8 .21 22	1.9 .05 5	42 .84	--	.5 .01	--	.30 10E	-- --		35 0	0.4 0.3	S
07/06/67 1230	5050 5050	2.60 89	7.5 99	70.5 21.4C	8.1 7.9	104	--	--	5.4 .23 21	--	48 .96	--	1.4 .04	--	.10 7E	-- --		42		S

MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
	A1	4400.00			PIT R SF NR LIKELY							$A_{23}E_2$ CONTINUED								
08/02/67 1455	5050 5050	2.63 88	8.6 104	62.5F 16.9C	8.0 8.0	106	--	--	8.3 .36 26	--	61 1.22	--	2.5 .07	--	.00 7E	-- --		50		S
09/07/67 1110	5050 5050	1.89 23	8.2 103	66.5F 19.1C	8.3 7.8	146	13 .65 41	5.7 .47 30	7.5 .33 21	4.5 .12 8	68 1.36 89	4.0 .08 5	1.7 .05 3	1.8 .03 2	.10	-- --	137 79	56 0	0.4 0.5	E T
10/10/67 1110	5050 5050	1.99 24	9.9 104	51 F 11 C	8.1 7.7	108	--	--	5.6 .24 23	--	50 1.00	--	1.1 .03	--	.00 2E	-- --		40		S
11/06/67 1510	5050 5050	2.03 27	9.9 100	48.0F 8.9C	7.6 8.2	107	--	--	8.7 .38 23	--	70 1.40	--	5.4 .15	--	.00 2E	-- --		63		S
12/13/67 1630	5050 5050	3.06 23	12.2 96	31.5 0.3C	7.4 7.5	115	--	--	6.2 .27 25	--	52 1.04	--	1.4 .04	--	.00 2E	-- --		40		S
01/04/68 1530	5050 5050	2.75 23	12.7 101	32 0 C	7.3 8.0	118	--	--	5.4 .23 20	--	57 1.14	--	.0 .00	--	.00 4E	-- --		46		S
02/08/68 1420	5050 5050	2.20 44	11.2 98	38 F 3 C	7.8 7.5	143	--	--	4.7 .20 15	--	64 1.28	--	.0 .00	--	.00 20E	-- --		56		S
03/07/68 1510	5050 5050	1.81 15	10.1 99	46 F 8 C	8.2 8.1	104	--	--	5.4 .23 22	--	50 1.00	--	1.0 .03	--	.00 7E	-- --		40		S
04/03/68 0815	5050 5050	2.02 29	11.7 101	37 F 3 C	7.7 7.8	107	--	--	4.6 .20 20	--	49 .98	--	.0 .00	--	.00 4E	-- --		40		S
05/07/68 1250	5050 5050	2.84 124	9.8 108	55 F 13 C	8.4 7.9	112	9.9 .49 41	4.2 .35 29	6.6 .29 24	2.6 .07 6	52 1.04 95	.0 .00	1.6 .05 5	.7 .01 1	.00 4E	-- --	75 57	42 0	0.4 0.4	T
06/10/68 1130	5050 5050	2.60 90	9.1 104	58 F 14 C	8.3 8.1	119	--	--	6.1 .27 22	--	58 1.16	--	1.3 .04	--	.20 5E	-- --		47		S
07/04/68 1300	5050 5050	2.54 83	9.2 117	67 F 19 C	8.4 8.3	149	--	--	7.8 .34 22	--	68 1.36	--	2.7 .08	--	.00 20E	-- --		60		S

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                                          MINERAL ANALYSES OF SURFACE WATER

 DATE      SAMPLER  G.H.    DO      TEMP   FIELD                                    MILLIGRAMS PER LITER          MILLIGRAMS PER LITER
 TIME      LAB      Q       SAT           LABORATORY   MINERAL CONSTITUENTS IN      MILLIEQUIVALENTS PER LITER
                    DEPTH                  PH     EC                                PERCENT REACTANCE VALUE     B     F      TDS     TH     SAR     REM
                                                        CA     MG     NA     K      CACO3    SO4    CL   NO3   TURB  SIO2     SUM     NCH    ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                  A1  4400.00          PIT R SF NR LIKELY                              A23E2 CONTINUED

08/08/68   5050     2.80    8.2   66  F  8.1          --     --     11     --      75       --    2.3   --    .00    --               58
 0730      5050      121    103   19  C  8.0    175                .48            1.50              .06        20E    --
                                                                    29
                                                                                                                                               S
09/05/68   5050     2.10    8.7   70     8.4          13    5.7     10    4.3      72      2.1    2.3   .3    .00    --      139      56    0.6      E
 1330      5050       34    114   21  C  8.2    160  .65    .47    .44    .11    1.44      .04    .06  .00    20E    --       81       0    0.7      T
                                                      39     28     26      7      94        3      4

10/08/68   5050     2.42   10.6   54  F  8.3          --     --     11     --      75       --    2.6   --    .00    --               59
 1230      5050       67    115   12  C  8.1    164                .48            1.50              .07        20E    --
                                                                    29
                                                                                                                                               S
11/15/68   5050     1.78   12.5   36  F  7.6          --     --    6.1     --      52       --    1.4   --    .00    --               45
 1055      5050       13    106    2  C  8.0    108                .27            1.04              .04         4E    --
                                                                    23
                                                                                                                                               S
01/21/69   5050     3.06   12.1   35     7.1          --     --    4.2     --      34       --    1.9   --    .00    --               32
 1630      5050      171    101    2  C  7.5     80                .18             .68              .05        75E    --
                                                                    22
                                                                                                                                               S
05/13/69   5050     4.71    8.9   61     8.4         7.7    3.2    4.2    1.8      35      2.6    1.9  1.7    .10    --       66      32    0.3      E
 1530      5050      756    105   16  C  7.2     82  .38    .26    .18    .05     .70      .05    .05  .03    25E    --       44       0    0.2      T
                                                      44     30     21      6      84        6      6    4

09/16/69   5050     2.60    8.3   63  F  7.9          12    4.9    8.6    3.2      63       .0    2.2   .2    .00    --      109      50    0.5      E
 1650      5050       89    101   17  C  8.3    138  .60    .40    .37    .08    1.26      .00    .06  .00    19E    --       69       0    0.6      T
                                                      41     28     26      6      95               5                                                S
01/13/70   5050     2.14   12.1   36     7.6          --     --    6.3     --      56       --    1.0   --    .00    --               46
 1150      5050       38    102    2  C  7.3    121                .27            1.12              .03         5E    --
                                                                    23
                                                                                                                                               S
05/13/70   5050     3.39   10.9   50     7.8         9.3    4.0    6.4    2.1      49       .5     .0  1.5    .00    --      104      40    0.4      E
 1520      5050      234    113   10  C  7.8    105  .46    .33    .28    .05     .98      .01    .00  .02    15E    --       53       0    0.4      T
                                                      41     29     25      4      97        1           2

10/07/70   5050     2.14   11.5   45  F  8.0          11    4.5    7.4    3.3      57      1.6    1.9   .1    .00    --      100      46    0.5      E
 0930      5050       38    111    7  C  8.1    126  .55    .37    .32    .08    1.14      .03    .05  .00    55E    --       64       0    0.5      T
                                                      42     28     24      5      93        2      4

06/04/71   5050     5.43   10.7   50.9F  7.4         8.4    4.1    5.0    2.2      46       .0     .0   .3    .10    --       86      38    0.4      E
 0840      5050     1020    112   10.5C  7.5     98  .42    .34    .22    .06     .92      .00    .00  .00    25E    --       48       0    0.3      T
                                                      40     33     21      6     100

10/13/71   5050     2.23   10.8   46.4F  7.4     97   --     --    4.5     --      48       --    1.4   --    .00    --               39
 0930      5050       48    106    8.0C  7.9    101                .20             .96              .04         6E    --
                                                                    20
                                                                                                                                               S
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MINERAL ANALYSES OF SURFACE WATER

A1 4400.00 PIT R SF NR LIKELY A23E2 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MILLIGRAMS PER LITER MG	MILLIEQUIVALENTS PER LITER NA	PERCENT REACTANCE VALUE K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
06/16/72 0715	5050 5050	3.08 169	9.0 99	54.5F 12.5C	7.8 7.3	77 78	--	--	3.9 .17 21	--	36 .72	--	.0 .00	--	.00 4A	-- --		32		S
10/11/72 0730	5050 5050	2.15 38	9.8 95	45.5F 7.5C	8.0 7.4	103 104	--	--	5.1 .22 22	--	50 1.00	--	1.2 .03	--	.00 1A	-- --		39		S
06/13/73 1205	5050 5050	2.69 110	8.4 99	60.8 16.0C	8.1 7.4	105 105	--	--	5.4 .23 22	--	52 1.04	--	.0 .00	--	.00 7A	-- --		40		S
10/16/73 0740	5050 5050	1.95 22	12.5 120	44.6 7.0C	7.5 7.5	118 116	--	--	7.0 .30 25	--	60 1.20	--	.0 .00	--	.00 13A	-- --		44		S
06/06/74 0845	5050	3.62 290	9.5 98	50.0F 10.0C	7.8	77	--	--	--	--	--	--	--	--	-- 7AF	-- --				S
10/09/74 0730	5050	1.98 25	9.8 97	46.4 8.0C	7.9	104	--	--	--	--	--	--	--	--	-- 3AF	-- --				S
06/04/75 0800		4.54 634	8.9 99	55.4 13.0C	7.6	77	--	--	--	--	--	--	--	--	--	-- --				S
10/16/75 0750	5050	2.19 38	10.1 95	42.8 6.0C	7.9	109	--	--	--	--	--	--	--	--	-- 3AF	-- --				S
06/03/76 0830	5050 5050	2.91 135	9.6 97	48.2 9.0C	7.6 7.9	97 98	--	--	4.8 .21 20	--	47 .94	--	.0 .00	--	.00 6A	-- --		41		S
10/13/76 1215	5050	1.98 22	9.7 108	55.4 13.0C	8.4	119	--	--	--	--	--	--	--	--	-- 2AF	-- --				
06/08/77 0745	5050 5050	2.89 133	9.4 109	59.0F 15.0C	8.0 7.5	 118	--	--	6.6 .29 24	--	56 1.12	--	.2 .01	--	.00 9A	-- --		45		S
10/05/77 0700	5050 5050	1.93 21	9.8 94	44.6F 7.0C	7.5 7.8	 111	--	--	5.4 .23 21	--	53 1.06	--	1.2 .03	--	.00 2A	-- --		42		S

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                                          MINERAL ANALYSES OF SURFACE WATER

 DATE     SAMPLER  G.H.    DO     TEMP   FIELD                                   MILLIGRAMS PER LITER          MILLIGRAMS PER LITER
 TIME      LAB     Q      SAT           LABORATORY   MINERAL CONSTITUENTS IN    MILLIEQUIVALENTS PER LITER
                  DEPTH                   PH     EC                              PERCENT REACTANCE VALUE      B      F      TDS     TH    SAR     REM
                                                       CA     MG     NA     K    CACO3    SO4    CL    NO3  TURB  SIO2    SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

               A1   4400.00          PIT R SF NR LIKELY                          A23E2 CONTINUED

06/14/78  5050    2.86    9.4   51.8F   7.6             --     --    3.5    --     36      --     .0    --    .00    --                30
  0830    5050     129    100   11.0C   7.2     82                   .15           .72            .00          2A     --
                                                                      20                                                                           S

10/12/78  5050    2.02   10.0   44.6    7.8             --     --    5.3    --     46      --     .0    --    .00    --                38
  0730    5050      24     96    7.0C   7.6    104                   .23           .92            .00          1A     --
                                                                      23                                                                           S

05/02/79  5050    2.99    9.4   57.2    7.3            8.0    3.0    6.0    --     44      --     .0    --    .00    --                32    0.5
  1400    5050     154    107   14.0C   7.4    109     .40    .25    .26           .88            .00          7A     --                 0    0.3
                                                        44     27     29                                                                           S

09/12/79  5050    2.39    8.3   68.0    8.7             13    5.0     11    --     71      --     .0    --    .00    --                53    0.7
  1135    5050      61    106   20.0C   7.9    156     .65    .41    .48          1.42            .00          18A    --                 0    0.7
                                                        42     27     31                                                                           S

05/07/80  5050    3.56    9.1   57.2    7.7            7.0    3.0    4.0   1.8     34      --    1.0    --    .00    --                30    0.3
  1435    5050     272    103   14.0C   7.4     75     .35    .25    .17   .05    .68            .03          6A     --                 0    0.2
                                                        43     30     21     6                                                                     S

09/03/80  5050    3.02    8.1   68.9    8.2             11    4.0    8.0   3.1     58      --    1.0    --    .00    --                44    0.5
  1630    5050            105   20.5C   7.7    127     .55    .33    .35   .08   1.16            .03          12A    --                 0    0.5
                                                        42     25     27     6                                                                     S

               A1   4500.00          PIT R SF NR JESS VLY                        A23E3

09/27/62  5050                                         8.8    3.4    6.4   2.8     51     1.0    1.0    .4    .00    .1     103     36    0.5     E
          5000     8.0                  7.7    100     .44    .28    .28   .07   1.02     .02    .03   .01    10E   36.0     90      0    0.4
                                                        41     26     26     7     94       2      3     1

               A1   4510.00          PIT R SF A LIKELY                           A23E2

09/27/62  5050                                          16    6.1     13   4.3     87     5.0    2.6   1.8    .10    .2     140     65    0.7     E
          5000                          8.1    180     .80    .50    .57   .11   1.74     .10    .07   .03    75E   35.0    136      0    0.9
                                                        40     25     29     6     90       5      4     2

06/08/77  5050            9.4           8.0    118      --     --     --    --     68      --     --    --     --    --
  0745    5050                                                                  1.36                         9AF    --
                                                                                                                                                   S

10/05/77  5050            9.8   44.6    7.5    111      --     --     --    --     65      --     --    --     --    --
  0700    5050     21E     94    7.0C                                           1.30                         2AF    --
                                                                                                                                                   S

06/14/78  5050            9.4   51.8F   7.6     82      --     --     --    --     36      --     --    --     --    --
  0930    5050    129E     99   11.0C                                            .72                         2AF    --
                                                                                                                                                   S
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                                       MINERAL ANALYSES OF SURFACE WATER

 DATE    SAMPLER  G.H.   DO    TEMP  FIELD                                   MILLIGRAMS PER LITER      MILLIGRAMS PER LITER
 TIME     LAB      Q     SAT        LABORATORY  MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                 DEPTH                PH    EC                           PERCENT REACTANCE VALUE     B     F     TDS     TH    SAR      REM
                                                   CA    MG    NA    K     CACO3     SO4    CL   NO3  TURB  SIO2   SUM     NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

            A1  4510.00         PIT R SF A LIKELY                             A23E2 CONTINUED

10/12/78  5050          10.0  44.6F  7.8          --    --    --    --    --        --    --   --    --    --
  0730    5050            96   7.0C                                                                     --

05/02/79  5050           9.4  57.2F  7.3   109    --    --    --    --    44        --    --   --    --    --
  1400    5050           106  14.0C                                       .88                         7AF   --
                                                                                                                                     S

05/15/79  5050           6.9  61.0F  7.4    85    --    --    --    --    --        --    --   --    --    --
  1445    5050    80E     81  16.1C                                                                     --

06/26/79  5050           9.7  66.9F  8.2   140    --    --    --    --    65        --    .4   --    --    --
  1100    5050    35E    122  19.4C        126                          1.30             .01          7AF   --
                                                                                                                                     S

10/23/79  5050                       7.7   122    --    --    --    --    57        --    --   --    --    --
  0700    5050                                                          1.14                          4AF   --
                                                                                                                                     S

01/17/80  5050          10.5  41.4F  7.4   155    12   5.0   9.0   3.3    67        --   1.0   --   .10    --               50   0.6
  1430    5050    25E     96   5.2C  8.0   146   .60   .41   .39   .08  1.34             .03          16A   --                0   0.6
                                                  41    28    26     5                                                                   S

            A1  4515.00         STONES CN C NR LIKELY                         A23E2

11/17/59  5050          11.4  46.0F                   12   3.9   7.7   2.1    62        .0   1.0   .7   .01    .1               46   0.5
  1550    5050     .5    111   7.8C  7.7   132   .60   .32   .33   .05  1.24       .00   .03  .01        30.0     95        0   0.5
                                                  46    25    25     4    97               2    1

            A1  4605.00         WEST VLY C BL W VLY RES                       A23E3

09/02/59  5050                65.0F                   15   5.5    12   4.7    83       4.3   2.1  1.1   .07    .1               60   0.7
  1335    5050    50E         18.3C  7.7   180   .75   .45   .52   .12  1.66       .09   .06  .02        38.0    133        0   0.8
                                                  41    24    28     7    91         5     3    1

12/10/59  5050          12.5  32.0F  7.9              14   3.4    23   7.7    95       4.0   6.0  1.5   .00    .0               49   1.4
  1030    5000     1E    100   0.0C  8.0   209   .70   .28  1.00   .20  1.90       .08   .17  .02        60.0    177        0   1.7
                                                  32    13    46     9    88         4     8    1

09/27/62  5050                                        14   5.0    13   4.3    72       7.0   2.0  4.3   .00    .1    120       56   0.8      E
          5000                       7.5   164   .70   .41   .57   .11  1.44       .15   .06  .07   15E  29.0    122        0   0.9
                                                  39    23    32     6    84         9     3    4
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MINERAL ANALYSES OF SURFACE WATER

MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE — MILLIGRAMS PER LITER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
	A1	4640.00			PIT R SF AB W VLY C							A23E3								
09/05/59 1330	5050 5050	14E		74.0F 23.3C	7.8	133	12 .60 45	4.1 .34 25	6.8 .30 22	4.1 .10 7	66 1.32 99	.0 .00	.3 .01 1	.6 .01 1	.03	.1 38.0	106	47 0	0.4 0.5	
	A1	5000.00			BURNEY C A MO							A23B1								
11/29/77 1315	5050 5050	25E 0	10.8 102	48.0 8.9C	7.5 7.7	121 121	--	--	4.6 .20 17	--	61 1.22	--	.0 .00	--	.00 0A	-- --		50		S
02/01/78 0935	5050 5050	500E 0	11.3 102	44.6 7.0C	7.1 7.7	100 101	--	--	3.8 .17 17	--	52 1.04	--	.0 .00	--	.00 0A	-- --		43		S
05/09/78 1440	5050 5050	0	9.9 100	53.6 12.0C	7.6 7.6	89 104	--	--	4.1 .18 17	--	53 1.06	--	.2 .01	--	.00 0A	-- --		44		S
08/23/78 1100	5050 5050	75E	10.5 102	50.0 10.0C	7.8	125	9.6 .48 35	7.8 .64 46	5.2 .23 17	1.0 .03 2	--	1.2 .02	1.7 .05	--	--	-- --		56	0.3	S
10/24/78 1000	5050 5050	75E	10.8 97	44.6 7.0C	7.7	141	9.7 .48 37	6.8 .56 43	5.0 .22 17	1.5 .04 3	--	--	--	--	.00	-- --		52	0.3	S
05/24/79 0915	5050 5050	125E	10.3 102	51.8 11.0C	7.5 7.9	112 110	9.0 .45 38	6.0 .49 41	5.0 .22 18	1.3 .03 3	53 1.06 100	.0 .00	.0 .00	.0 .00	.00	-- --	87 53	47 0	0.3 0.3	E T S
07/26/79 1000	5050 5050	200E	10.4 100	49.1 9.5C	7.6	121	10 .50 40	6.0 .49 39	5.0 .22 18	1.4 .04 3	--	--	--	--	.00	-- --		50	0.3	S
12/05/79 1020	5050 5050	100E	11.3 103	45.1 7.3C	7.6	120	10 .50 40	6.0 .49 39	5.0 .22 18	1.4 .04 3	--	--	--	--	.00	-- --		50	0.3	S

MINERAL ANALYSES OF SURFACE WATER

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 DATE     SAMPLER  G.H.    DO     TEMP    FIELD                                   MILLIGRAMS PER LITER       MILLIGRAMS PER LITER
 TIME      .LAB     Q      SAT          LABORATORY   MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                  DEPTH                    .PH    EC                            PERCENT REACTANCE VALUE       B     F      TDS     TH    SAR      REM
                                                         CA    MG    NA    K     CACO3     SO4   CL   NO3   TURB  SIO2     SUM     NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

               A1  5100.00        BURNEY C A BURNEY FALLS                     A23B1

07/26/77  5050            10.7  52.0F  7.1   114   --    --    --    --      --        --    --   --     --    --
  1210    5050             106  11.1C  7.7                                                              0AF    --

07/26/77  5050            10.0  58.0F  7.0   119   --    --    --    --      60        --    --   --     --    --
  1[illegible]0    5050             107  14.4C  7.3                                   1.20                                   1AF    --                              S

07/26/77  5050            10.6  49.0   7.0   118   --    --    --    --      --        --    --   --     --    --
  1820    5050             101   9.4C  7.4                                                              1AF    --

07/26/77  5050                  49.0F  7.1   120   --    --    --    --      --        --    --   --     --    --
  2225    5050                   9.4C  7.3                                                              1AF    --

07/27/77  5050             9.3  48.0F  6.9   116   --    --    --    --      60        --    --   --     --    --
  0250    5050              88   8.9C  7.2                                   1.20                                   1AF    --                              S

07/27/77  5050            10.0  48.0   7.1   118   --    --    --    --      --        --    --   --     --    --
  0[illegible]10    5050              94   8.9C  7.5                                                              0AF    --

07/27/77  5050            10.4  52.0F  7.1   118   --    --    --    --      --        --    --   --     --    --
  1035    5050             103  11.1C  7.5                                                              0AF    --

07/27/77  5050            10.0  57.2F  7.0   115  9.5   6.3   5.5   1.8      60       1.6   .5   .2    .00    --      96      50    0.3      E
  1520    5050     50E     106  14.0C  7.7   125  .47   .52   .24   .05    1.20       .03  .01  .00    1AF    --      61       0    0.4      T
                                                   37    41    19     4      97         2    1
07/27/77  5050             9.7  50.0F  7.0   120   --    --    --    --      --        --    --   --     --    --
  1900    5050              94  10.0C  7.4                                                              1AF    --

07/27/77  5050             9.4  49.0F  6.9   126   --    --    --    --      --        --    --   --     --    --
  2250    5050              90   9.4C  7.6                                                              2AF    --

07/28/77  5050             9.8  49.0F  6.9   157   --    --    --    --      60        --    --   --     --    --
  0240    5050              94   9.4C  7.3                                   1.20                                   2AF    --                              S

07/28/77  5050            10.0  50.0   7.0   120   --    --    --    --      --        --    --   --     --    --
  0600    5050              97  10.0C  7.5                                                              1AF    --
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MINERAL ANALYSES OF SURFACE WATER

A1 5100.00 BURNEY C A BURNEY FALLS

A$_{23}$B1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE										MILLIGRAMS PER LITER			
							CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
08/25/77 0600	5050 5050		9.7 93	49.0F 9.4C	7.0 7.4	117	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/25/77 1000	5050 5050		10.0 96	49.0F 9.4C	7.0 7.0	118	--	--	--	--	--	--	--	--	-- 2AF	-- --				
08/25/77 1400	5050 5050		10.2 98	49.0F 9.4C	7.0 7.0	121	--	--	--	--	58 1.16	--	--	--	-- 1AF	-- --				S
08/25/77 1600	5050 5050		10.3 97	48.0 8.9C	7.0 7.0	126	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/25/77 2200	5050 5050		9.5 91	49.0F 9.4C	7.1 7.1	126	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/26/77 0200	5050 5050		9.9 93	48.0F 8.9C	7.0 7.3	123	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/26/77 0800	5050 5050		10.2 99	50.0F 10.0C	7.2 7.6	121	--	--	--	--	--	--	--	--	-- 0AF	-- --				
09/29/77 1430	5050		10.2 98	49.0F 9.4C	7.0 7.3	130	--	--	--	--	--	--	--	--	--	-- --				
05/23/78 1300	5050 5050			52.0F 11.1C	7.1 8.2	106 110	--	--	4.5 .20 19	--	52 1.04	--	.0 .00	--	.00	-- --		42		S
06/29/78 0655	5050 5050		10.0 98	50.9 10.5C	7.0	124	--	--	--	--	--	--	--	--	-- 0AF	-- --				
06/29/78 1130	5050 5050		10.0 98	50.9F 10.5C	7.2 7.9	123	--	--	5.5 .24 19	--	66 1.32	--	.0 .00	--	.00 1AF	-- --		50		S
06/29/78 1615	5050 5050		10.0 99	52.0F 11.1C	7.2	119	--	--	--	--	--	--	--	--	-- 0AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 5100.00 BURNEY C A BURNEY FALLS A23B1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	 EC	MINERAL CONSTITUENTS IN CA	 MG	 NA	 K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	 SO4	 CL	 NO3	MILLIGRAMS PER LITER B TURB	 F SIO2	 TDS SUM	 TH NCH	 SAR ASAR	 REM
06/29/78 1935	5050 5050		10.1 97	49.0F 9.4C	7.2	110	--	--	--	--	--	--	--	--	-- 0AF	-- --				
06/29/78 2345	5050 5050		7.3 70	49.0F 9.4C	6.9	120	--	--	--	--	--	--	--	--	-- 0AF	-- --				
06/30/78 0350	5050 5050		7.8 74	48.0F 8.9C	7.1	113	--	--	--	--	--	--	--	--	-- 0AF	-- --				
08/03/78 0705	5050 5050		9.7 94	50.0F 10.0C	7.1	124	--	--	--	--	--	--	--	--	-- 0AF	-- --				
08/03/78 1125	5050 5050		10.1 100	51.8 11.0C	7.2 7.8	115	--	--	5.7 .25 20	--	63 1.26	--	.0 .00	--	.00 0AF	-- --		50		S
08/03/78 1545	5050 5050		10.4 103	52.0 11.1C	7.1	114	--	--	--	--	--	--	--	--	-- 0AF	-- --				
08/03/78 1905	5050 5050		9.7 97	52.0F 11.1C	7.0	120	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/03/78 2359	5050 5050		9.5 93	51.0F 10.5C	7.1	113	--	--	--	--	--	--	--	--	-- 0AF	-- --				
08/04/78 0420	5050 5050		9.8 95	50.0F 10.0C	7.1	111	--	--	--	--	--	--	--	--	-- 0AF	-- --				
05/15/79 1645	5050 5050		9.1 99	59.0F 15.0C	7.3	100	--	--	--	--	--	--	--	--	-- 1AF	-- --				
05/15/79 2015	5050 5050		9.4 98	55.9F 13.3C	7.3	100	--	--	--	--	--	--	--	--	-- 1AF	-- --				
05/16/79 0130	5050 5050		9.1 92	53.6F 12.0C	7.4	110 110	--	--	--	--	--	--	--	--	-- 1AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 5100.00 BURNEY C A BURNEY FALLS A23B1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CA	MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
05/16/79 0520	5050 5050		9.2 91	51.8F 11.0C	7.1 7.6	110 110	--	--	--	--	49 .98	--	--	--	-- 1AF	-- --				S
05/16/79 0855	5050 5050		9.6 99	54.5 12.5C	7.1	100	--	--	--	--	--	--	--	--	-- 1AF	-- --				
05/16/79 1250	5050 5050		9.2 100	59.0F 15.0C	7.1 7.7	105	--	--	--	--	49 .98	--	--	--	-- 1AF	-- --				S
05/16/79 1530	5050 5050	50E		59.0 15.0C	7.1	105	--	--	--	--	--	--	--	--	--	-- --				
06/26/79 1350	5050 5050		10.5 103	50.9F 10.5C	7.2	135 130	--	--	--	--	--	--	--	--	-- 0AF	-- --				
06/26/79 1755	5050 5050		9.7 94	50.0F 10.0C	7.2 8.0	135 133	--	--	--	--	65 1.30	--	.5 .01	--	-- 1AF	-- --				S
06/26/79 2215	5050 5050		9.7 93	49.1 9.5C	7.1	125 126	--	--	--	--	--	--	.6 .02	--	-- 0AF	-- --				S
06/27/79 0210	5050 5050		9.8 93	48.2 9.0C	7.1	124 125	--	--	--	--	--	--	.6 .02	--	-- 0AF	-- --				S
06/27/79 0540	5050 5050		9.6 91	48.2 9.0C	7.2 7.8	135 127	--	--	--	--	55 1.10	--	.5 .01	--	-- 0AF	-- --				S
06/27/79 1115	5050 5050	25E	10.3 105	53.6 12.0C	7.2	150 140	--	--	--	--	--	--	.7 .02	--	-- 1AF	-- --				S
08/16/79 0910	5050 5050		10.3 100	50.0 10.0C	7.2	 129	--	--	--	--	--	--	--	--	-- 0AF	-- --				X S
08/16/79 1145	5050 5050		10.4 103	51.8F 11.0C	7.3	115 129	--	--	--	--	--	--	--	--	-- 0AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE				MILLIGRAMS PER LITER					
	AI	5100.00		BURNEY C A BURNEY FALLS							A23B1 CONTINUED									
08/16/79 1445	5050 5050		10.2 100	50.9F 10.5C	7.2	115 128	--	--	--	--	--	--	--	--	-- 0AF	-- --				
08/16/79 1815	5050 5050		10.1 93	49.1F 9.5C	7.2 7.5	120 126	--	--	--	--	49 .98	--	.8 .02	--	-- 0AF	-- --				S
08/16/79 2105	5050 5050		9.8 94	48.2F 9.0C	7.2	120 129	--	--	--	--	--	--	--	--	-- 0AF	-- --				
08/17/79 0005	5050 5050		9.5 89	47.3F 8.5C	7.2	120 129	--	--	--	--	--	--	--	--	-- 0AF	-- --				
08/17/79 0200	5050 5050		9.5 88	46.2F 7.9C	7.1	118 128	--	--	--	--	--	--	--	--	-- 0AF	-- --				
08/17/79 0550	5050 5050		9.5 89	47.1F 8.4C	7.1 7.5	118 128	--	--	--	--	50 1.00	--	.8 .02	--	-- 0AF	-- --				S
08/17/79 1045	5050 5050		10.3 98	48.9 9.4C	7.3 7.8	125 129	--	--	6.0 .26 21	--	61 1.22	--	1.0 .03	--	.00 1AF	-- --		50		S
10/23/79 1045	5050 5050		10.3 98	48.2F 9.0C	7.2	125 122	--	--	--	--	--	--	--	--	-- 1AF	-- --				
10/23/79 1435	5050 5050		9.6 91	48.6F 9.2C	7.3	125 123	--	--	--	--	--	--	--	--	-- 1AF	-- --				S
10/23/79 1645	5050 5050		9.9 94	48.7 9.3C	7.2	135 122	--	--	--	--	--	--	--	--	-- 1AF	-- --				S
10/23/79 2025	5050 5050		9.7 92	48.4 9.1C	7.1	130 122	--	--	--	--	--	--	--	--	-- 1AF	-- --				S
10/24/79 0540	5050 5050		9.8 93	48.0F 8.9C	7.1	 122	--	--	--	--	--	--	--	--	-- 1AF	-- --				S

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                                      MINERAL ANALYSES OF SURFACE WATER

 DATE     SAMPLER  G.H.    DO     TEMP   FIELD                                MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME      LAB     Q       SAT          LABORATORY   MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                  DEPTH                    PH    EC                           PERCENT REACTANCE VALUE   B      F      TDS    TH    SAR    REM
                                                      CA     MG     NA      K   CACO3     SO4    CL   NO3   TURB   SIO2    SUM   NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                  A1  5100.00          BURNEY C A BURNEY FALLS                      A2381 CONTINUED

10/24/79  5050             10.0   48.4F   7.2           --     --     --     --      59      --    --    --     --     --
  0845    5050               95    9.1C   7.8   122                                 1.18                       1AF     --
                                                                                                                                             S

01/18/80  5050             11.3   37.4F   7.0    55    4.0    2.0    2.0    1.0      22      --    .0    --    .00     --           18    0.2
  1145    5050     600E      92    3.0C   7.9    51    .20    .16    .09    .03     .44           .00          12A     --            0    0.0
                                                        42     33     19      6                                                                S

                  A1  5150.00          BURNEY C NR BURNEY                           A2383

04/11/51  5050     1.12    10.0   50.0F   8.0           --     --    1.8     --      25      --   1.8    --     --     --           20
  1345    5000               98   10.0C   7.4    48                  .08             .50           .05           5E     --
                                                                      17                                                                     S

05/09/51  5050     0.72    11.6   51.8F   7.4          5.8    2.9    2.5     .4      30     1.4    .2    .0    .16     --           26    0.2
  1345    5000              117   11.0C   7.2    58    .29    .24    .11    .01     .60     .03   .01   .00          23.0     54     0    0.1
                                                        45     37     17      2      94       5     2

06/17/51  5050     0.07     8.0   68.9F   7.7           --     --     --     --      51      --    .0    --     --     --           40
  1320    5050               98   20.5C         108                                 1.02           .00          25E     --
                                                                                                                                             S

07/11/51  5050     0.01     8.4   66.0    7.9           --     --     --     --      54      --    .0    --     --     --           44
  1300    5050              100   18.9C   7.5   113                                 1.08           .00          25E     --
                                                                                                                                             S

08/15/51  5050     0.01     9.2   59.0    7.7           --     --     --     --      54      --   4.0    --     --     --           52
  1240    5050              101   15.0C   7.1   115                                 1.08           .11          25E     --
                                                                                                                                             S

09/13/51  5050     0.01     9.4   51.8    7.4           10    5.6    5.1     .7      57     1.0   1.2   1.2    .07     .0           48    0.3
  1000    5000               95   11.0C   6.8   112    .50    .46    .22    .02    1.14     .02   .03   .02          30.0     89     0    0.3
                                                        42     38     18      2      94       2     2     2

10/10/51  5050     0.01    10.0   50.0F   7.3           --     --    4.6     --      56      --   1.0    --     --     --           46
  1300    5000               98   10.0C   7.6   115                  .20            1.12           .03           0E     --
                                                                      18                                                                     S

11/15/51  5050     0.03    12.0   38.3    7.1           --     --    5.4     --      49      --   1.5    --     --     --           42
  1030    5000              100    3.5C   7.0   105                  .23             .98           .04           0E     --
                                                                      21                                                                     S

04/16/52  5050             10.0   46.9F   7.0           --     --     --     --      26      --    .0    --     --     --           20
  1400    5050               94    8.3C          50                                  .52           .00           6E     --
                                                                                                                                             S
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                                           MINERAL ANALYSES OF SURFACE WATER

 DATE     SAMPLER  G.H.   DO    TEMP   FIELD                                      MILLIGRAMS PER LITER      MILLIGRAMS PER LITER
 TIME      LAB     Q      SAT          LABORATORY   MINERAL CONSTITUENTS IN    MILLIEQUIVALENTS PER LITER
                   DEPTH                PH    EC                                PERCENT REACTANCE VALUE    B     F      TDS    TH    SAR    REM
                                                    CA    MG    NA    K      CACO3     SO4   CL   NO3  TURB  SIO2    SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

               A1  5150.00          BURNEY C NR BURNEY                        A23B3 CONTINUED

05/13/52  5050           10.6  50.0F  7.4          4.1   1.4   1.4   .5     20       .7    .4   .0   .02   .0            16   0.2
 1250     5000           104   10.0C  7.3    39    .20   .12   .06  .01    .40      .01   .01  .00        16.0     37     0   0.0
                                                    51    31    15    3     95        2     2

06/11/52  5050            9.7  50.0F  7.3          --    --    --    --     26       --   1.0   --    --    --            24
 1200     5050     106    95   10.0C  7.1    55                            .52            .03        1E    --
                                                                                                                                   S

07/08/52  5050            7.4  69.8F  7.5          --    --    --    --     43       --    .0   --    --    --            44
 1530     5050      42    92   21.0C  7.2    88                            .86            .00        2E    --
                                                                                                                                   S

08/14/52  5050            7.4  57.4   7.3          --    --    --    --     62       --    .0   --    --    --            50
 0730     5050      21    80   14.1C  8.1   120                           1.24            .00        5E    --
                                                                                                                                   S

09/11/52  5050            9.6  50.0   7.3          --    --    --    --     59       --    .5   --    --    --            47
 0730     5000      17    94   10.0C  7.1   114                           1.18            .01              --
                                                                                                                                   S

10/16/52  5050     0.14   9.6  46.4F  7.3          11    4.8   4.5   1.4    57       .6    .8   .3   .02   .0            47   0.3
 1015     5000            90    8.0C  7.5   108    .55   .39   .20  .04   1.14      .01   .02  .00        30.0     88     0   0.3
                                                    47    33    17    3     97        1     2

11/17/52  5050     0.46  11.7  39.2F  7.2          --    --    --    --     54       --    .0   --    --    --            44
 1400     5050            99    4.0C  7.6   113                           1.08            .00        2E    --
                                                                                                                                   S

03/26/53  5050     0.62  10.5  43.7F  7.0          6.4   1.9   3.8   --     32       --   1.0   --   .04    --            24   0.3
 1000     5000            95    6.5C  7.4    60    .32   .16   .17           .64            .03              --             0   0.2
                                                    49    25    26
                                                                                                                                   S

04/15/53  5050           10.0  45.5F  7.3          5.8   2.7   3.4   --     32       --    .5   --   .01    --            26   0.3
 1145     5000            93    7.5C  7.3    62    .29   .22   .15           .64            .01        10E   --             0   0.1
                                                    44    33    23
                                                                                                                                   S

05/06/53  5050     1.55   9.8  49.1F  7.2          4.0   1.9   2.0   .4     22       .7    .2   .0   .04   .0            18   0.2
 1030     5000            95    9.5C  7.5    42    .20   .16   .09  .01    .44      .01   .01  .00   5E  17.0     39     0   0.0
                                                    43    35    20    2     96        2     2

06/11/53  5050     1.08  10.2  50.0F  7.3          --    --    --    --     26       --   1.0   --    --    --            22
 1005     5050           100   10.0C         64                            .52            .03        6F    --
                                                                                                                                   S

07/08/53  5050            7.9  69.8F               --    --    2.9   --     46       --    .0   --   .03    --            40
 1100     5050            98   21.0C  7.2    80                .13         .92            .00        10E   --
                                                                14
                                                                                                                                   S
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                                        MINERAL ANALYSES OF SURFACE WATER

  DATE    SAMPLER  G.H.    DO    TEMP  FIELD                            MILLIGRAMS PER LITER         MILLIGRAMS PER LITER
  TIME     LAB      Q      SAT       LABORATORY   MINERAL CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
                  DEPTH                PH    EC                          PERCENT REACTANCE VALUE        B     F      TDS    TH    SAR    REM
                                                   CA    MG    NA     K   CACO3    SO4    CL   NO3   TURB  SIO2     SUM   NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                A1  5150.00          BURNEY C NR BURNEY                                  A23B3 CONTINUED

08/12/53  5050           8.5  60.8F   7.3          9.8   5.2   3.8   1.1     51     --   1.5    --    .01    --              46   0.2
  1100    5000      8E    96  16.0C   7.2    98    .49   .43   .17   .03   1.02          .04          13E    --               0   0.2
                                                    44    38    15     3                                                                S

09/23/53  5050           9.8  50.0F                 10   5.6   4.1   1.0     56    2.1    .2    .1    .05    .1              48   0.3
  1130    5000            96  10.0C   7.5   105    .50   .46   .18   .03   1.12    .04   .01   .00    35E  31.0      88     0   0.3
                                                    43    39    15     3     96      3     1

10/07/53  5050           9.4  53.6F   7.3           10   5.3   6.0   1.3     56     --    .2    --    .01    --              47   0.4
  1400    5000            97  12.0C   7.9   108    .50   .44   .26   .03   1.12          .01          51E    --               0   0.4
                                                    41    36    21     2                                                                S

11/11/53  5050           9.2   46.4   7.3           --    --   5.2    --     48     --   1.0    --    .01    --              43
  1000    5050            86   8.0C          93                .23          .96          .03          55E    --
                                                                21                                                                      S

12/16/53  5050          11.3   32.9   7.2          8.8   4.6   3.8   1.0     48     --    .5    --    .03    --              41   0.3
  0815    5000     12E    87   0.5C   7.4    95    .44   .38   .17   .03    .96          .01           2E    --               0   0.2
                                                    43    37    17     3                                                                S

04/15/54  5050           9.7   48.0   7.0          4.6   1.7   1.9    .4     23     --    .0    --    .00    --              18   0.2
  1230    5000    110E    93   8.9C   7.3    45    .23   .14   .08   .01    .46          .00           2E    --               0   0.0
                                                    50    30    17     2                                                                S

05/06/54  5050           9.9   51.0   7.2          4.7   2.1   1.8    .5     25     .7    .3    .2    .01    .0              20   0.2
  1145    5000     60E    99  10.5C   7.7    49    .23   .17   .08   .01    .50    .01   .01   .00     1E  19.0      44     0   0.1
                                                    47    35    16     2     96      2     2

06/08/54  5050           8.7  53.0F   7.1          7.2   3.4   3.4   1.1     39     --   2.0    --    .14    --              32   0.3
  1230    5000     15E    89  11.7C   7.9    79    .36   .28   .15   .03    .78          .06           5E    --               0   0.2
                                                    44    34    18     4                                                                S

07/14/54  5050           6.7   74.0   7.4           15   1.9   4.2   1.1     53     --   1.0    --    .02    --              45   0.3
  1545    5000      7E    87  23.3C   7.6   100    .75   .16   .18   .03   1.06          .03           2E    --               0   0.3
                                                    67    14    16     3                                                                S

08/10/54  5050           8.1   57.0   7.3           11   5.1   4.7   1.1     57     --    .5    --    .00    --              48   0.3
  0930    5000      6E    87  13.9C   8.0   113    .55   .42   .20   .03   1.14          .01           1E    --               0   0.3
                                                    46    35    17     3                                                                S

09/15/54  5050           8.4   57.0   7.3           11   4.9   4.6   1.4     56     .3    .5    .2    .01    .1              48   0.3
  1615    5000     20E    90  13.9C   7.8   108    .55   .40   .20   .04   1.12    .01   .01   .00     2E  30.0      86     0   0.3
                                                    46    34    17     3     98      1     1

10/13/54  5050           9.8  47.3F   7.3           12   5.5   4.8   1.0     58     --   1.0    --    .00    --              53   0.3
  1100    5000     10E    93   8.5C   7.8   110    .60   .45   .21   .03   1.16          .03           1E    --               0   0.3
                                                    47    35    16     2                                                                S
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MINERAL ANALYSES OF SURFACE WATER

A1 5150.00 BURNEY C NR BURNEY A23B3 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
11/10/54 1030	5050 5000	10E	10.2 94	45.1F 7.3C	7.2 7.6	101	11 .55 47	4.5 .37 32	4.5 .20 17	1.6 .04 3	52 1.04	--	1.0 .03	--	.03 3E	-- --		46 0	0.3 0.3	S
03/02/55 1530	5050 5000	60E	10.6 91	40.0 4.4C	6.8 7.6	94	11 .55 50	4.0 .33 30	4.1 .18 17	1.3 .03 3	48 .96	--	.5 .01	--	.00 8E	-- --		44 0	0.3 0.2	S
04/01/55 0815	5050 5000	75E	10.4 92	42.0 5.6C	7.2 7.4	65	3.5 .17 24	4.5 .37 53	3.2 .14 20	.7 .02 3	34 .68	--	.0 .00	--	.03 10E	-- --		27 0	0.3 0.1	S
05/11/55 1000	5050 5000	200C	10.5 103	50.0F 10.0C	7.2 7.1	50	5.1 .25 48	1.8 .15 29	2.4 .10 19	.8 .02 4	26 .52 95	.5 .01 2	.8 .02 4	.1 .00	.02 3E	.2 18.0	45	20 0	0.2 0.1	
06/15/55 1000	5050 5000	40E	8.6 92	57.0F 13.9C	7.3 7.5	91	10 .50 52	3.4 .28 29	3.7 .16 16	1.2 .03 3	48 .96	--	.4 .01	--	.00 1E	-- --		39 0	0.3 0.2	S
07/13/55 1040	5050 5000	20E	9.2 100	58.0 14.4C	7.4 7.6	102	10 .50 47	4.4 .36 34	4.2 .18 17	1.3 .03 3	54 1.08	--	.5 .01	--	.04 2E	-- --		43 0	0.3 0.3	S
08/17/55 1015	5050 5000	25E	9.4 96	53.0F 11.7C	7.4 7.5	108	11 .55 45	5.5 .45 37	4.6 .20 16	.9 .02 2	58 1.16	--	.8 .02	--	.00 1E	-- --		50 0	0.3 0.3	S
09/14/55 1055	5050 5000	50E	9.0 94	55.0 12.8C	7.2 7.4	108	11 .55 48	4.6 .38 33	4.3 .19 17	1.0 .03 3	57 1.14 100	.0 .00	.0 .00	.2 .00	.00 1E	.0 29.0	84	46 0	0.3 0.3	
10/12/55 1120	5050 5000	25E	10.0 92	45.0F 7.2C	7.2 7.6	111	10 .50 42	5.6 .46 39	4.5 .20 17	1.2 .03 3	58 1.16	--	.0 .00	--	.03 3E	-- --		48 0	0.3 0.3	S
11/16/55 1230	5050 5000	35E	11.8 95	36.0F 2.2C	7.0 7.8	107	10 .50 44	5.2 .43 38	4.2 .18 16	1.1 .03 3	57 1.14	--	.0 .00	--	.00 6E	-- --		46 0	0.3 0.3	S
05/09/56 0930	5050 5000	100E	11.4 105	45.0 7.2C	6.8 7.4	42	4.8 .24 48	1.9 .16 32	2.0 .09 18	.4 .01 2	23 .46 90	1.0 .02 4	1.0 .03 6	.1 .00	.00 6E	.0 17.0	42	20 0	0.2 0.1	C
06/13/56 0815	5050 5000	100E	9.2 94	53.0F 11.7C	7.1 7.7	65	6.7 .33 48	2.8 .23 33	2.6 .11 16	.9 .02 3	36 .72	--	.4 .01	--	.06 1E	-- --		28 0	0.2 0.1	S

MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE; MILLIGRAMS PER LITER

MINERAL ANALYSES OF SURFACE WATER

A1 5150.00 BURNEY C NR BURNEY

A2$_3$B$_3$ CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/18/56 0840	5050 5000	60E	9.1 103	61.0F 16.1C	7.3 7.3	92	8.8 .44 44	4.4 .36 36	4.0 .17 17	1.0 .03 3	49 .98	--	.3 .01	--	.00 0E	-- --		40 0	0.3 0.2	S
08/15/56 0950	5050 5000	30E	9.3 100	57.0F 13.9C	7.3 7.5	102	9.9 .49 43	5.2 .43 38	4.2 .18 16	1.1 .03 3	56 1.12	--	.0 .00	--	.00 1E	-- --		46 0	0.3 0.3	S
09/19/56 0915	5050 5000	40E	9.4 97	54.0 12.2C	6.8 7.4	106	11 .55 46	5.0 .41 34	4.5 .20 17	1.2 .03 3	58 1.16 97	1.0 .02 2	.5 .01 1	.0 .00	.01 1E	.0 33.0	91	48 0	0.3 0.3	
10/17/56 0930	5050 5000	50E	9.7 92	47.0F 8.3C	7.0 7.2	107	10 .50 44	4.9 .40 35	4.5 .20 18	1.5 .04 4	55 1.10	--	.2 .01	--	.00 30E	-- --		45 0	0.3 0.3	S
04/10/57 1000	5050 5000	110E	10.9 114	55.0F 12.8C	7.3 7.7	59	6.4 .32 52	2.2 .18 29	2.5 .11 18	.5 .01 2	31 .62	--	.0 .00	--	.00 1E	-- --		25 0	0.2 0.1	S
05/08/57 0940	5050 5000	30E	9.0 92	53.0 11.7C	7.3 7.4	63	6.0 .30 46	2.7 .22 34	2.5 .11 17	.6 .02 3	30 .60 92	1.9 .04 6	.0 .00	.5 .01 2	.00 5E	.2 21.0	53	26 0	0.2 0.1	
06/12/57 0740	5050 5000	26E	9.3 96	54.0F 12.2C	7.3 7.0	73	9.4 .47 59	2.1 .17 22	3.0 .13 16	.6 .02 3	36 .72	--	.6 .02	--	.09 1E	-- --		32 0	0.2 0.1	S
07/10/57 0855	5050 5000	15	9.2 96	55.0F 12.8C	7.5 7.3	99	--	--	4.2 .18 17	--	47 .94	--	1.0 .03	--	.08 1E	-- --		45		S
08/14/57 0920	5050 5000	16	9.1 97	56.0 13.3C	7.3 7.8	105	--	--	6.0 .26 22	--	55 1.10	--	1.5 .04	--	.00 1E	-- --		46		S
09/18/57 0815	5050 5000	20	8.8 92	55.0 12.8C	7.3 7.4	112	14 .70 56	3.6 .30 24	4.8 .21 17	1.5 .04 3	58 1.16 94	1.9 .04 3	1.0 .03 2	.2 .00	.00 1E	.0 34.0	96	50 0	0.3 0.3	
10/24/57 1140	5050 5000	55	10.0 98	50.0F 10.0C	7.3 7.6	91	--	--	3.4 .15 16	--	48 .96	--	.7 .02	--	.01 1E	-- --		39		S
11/13/57 1440	5050 5000	110	9.8 91	46.0F 7.8C	7.1 7.4	92	--	--	4.3 .19 18	--	45 .90	--	.0 .00	--	.00 39F	-- --		42		S

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                                        MINERAL ANALYSES OF SURFACE WATER

 DATE      SAMPLER  G.H.    DO     TEMP   FIELD                                  MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME      LAB      Q       SAT           LABORATORY   MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                    DEPTH                  PH     EC                             PERCENT REACTANCE VALUE     B    F     TDS    TH    SAR    REM
                                                        CA     MG     NA     K      CACO3      SO4    CL    NO3   TURB  SIO2   SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

               A1  5150.00         BURNEY C NR BURNEY                              A23B3 CONTINUED

04/16/58  5050           10.0  53.0F  7.3               --     --     2.2    --      25         --    1.0   --    .00    --                23
 1430     5000     127    102  11.7C  7.2    51                       .10            .50               .03          2E     --
                                                                       18                                                                          S

05/14/58  5050           10.4  47.0   7.1              4.4    1.7    2.4    .8      22         .0    1.9   .2    .01    .0                18     0.2
 0845     5000     160     98   8.3C  7.1    46        .22    .14    .10   .02     .44        .00   .05   .00    1E   17.0    42          0     0.0
                                                        46     29     21     4      90               10

06/18/58  5050     6.03   8.8  58.0   7.3               --     --     2.7    --      32         --    .6    --    .00    --                27
 1000     5000     75E     96  14.4C  7.8    64                       .12            .64               .02          5E     --
                                                                       18                                                                          S

07/16/58  5050     5.26   8.6  58.0   7.3               --     --     3.8    --      46         --    1.2   --    .10    --                38
 0840     5000     25E     94  14.4C  7.8    93                       .17            .92               .03          1E     --
                                                                       18                                                                          S

08/13/58  5050     5.20   8.5  56.0   7.3               --     --     4.2    --      56         --    1.2   --    .00    --                46
 0800     5000     19E     90  13.3C  7.6   105                       .18           1.12               .03          0E     --
                                                                       16                                                                          S

09/10/58  5050     5.06   9.0  53.0F  7.3              9.2    5.6    3.9   2.1      55        1.9    .5    .8    .00    .1                46     0.3
 0840     5000     13E     92  11.7C  7.6   107        .46    .46    .17   .05    1.10        .04   .01   .01    1E   31.0    88          0     0.2
                                                        40     40     15     4      95          3     1     1

10/15/58  5050     5.07  10.3  46.0F  7.1               --     --     4.1    --      54         --    1.8   --    .10    --                46
 0940     5000     18E     96   7.8C  7.9   107                       .18           1.08               .05          20E    --
                                                                       16                                                                          S

               A1  6000.00         HAT C A MO                                      A23B1

10/24/57  5050            9.8  51.0F  7.5              5.8    8.6    7.0   2.9      64        1.6   1.0   1.0    .09    .2                50     0.4
 1255     5050    150E     96  10.5C  7.1   127        .29    .71    .30   .07    1.28        .03   .03   .02         36.0   102          0     0.5
                                                        21     52     22     5      94          2     2     1

05/09/78  5050            9.7  57.2F  8.1               --     --     7.2    --      63         --    .7    --    .00    --                48
 1025     5050            103  14.0C  7.5   129                       .31           1.26               .02          0A     --
                                                                       24                                                                          S
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                                          MINERAL ANALYSES OF SURFACE WATER

 DATE      SAMPLER  G.H.    DO      TEMP    FIELD                                    MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME      LAB      Q       SAT            LABORATORY    MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                    DEPTH                    PH    EC                                PERCENT REACTANCE VALUE       B     F       TDS    TH    SAR    REM
                                                           CA    MG    NA    K       CACO3     SO4   CL   NO3   TURB  SIO2      SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

               A1  6100.00          HAT C NR CASSEL                                  A23B4

08/13/53   5050                     60.0F                9.8   5.7   7.4   2.3      64       1.3   2.5   .4    .00   .0              48    0.5
 1615      5000     325E            16.0C   7.8    127   .49   .47   .32   .06    1.28       .03   .07   .01         47.0      115     0    0.5
                                                          37    35    24     4      92         2     5     1

06/21/59   5050                     68.0F                 10   5.6   7.0   2.3      62        .5   1.4   1.1   .07   .1              48    0.4
 1245      5050      75E            20.0C   7.5    133   .50   .46   .30   .06    1.24       .01   .04   .02         37.0      102     0    0.5
                                                          38    35    23     5      95         1     3     2

05/10/60   5050     3.27     9.7    59.0F   7.7          9.8   6.2   5.8   2.2      61       1.3   1.0    .2   .02   .2              50    0.4
 1455      5050              105    15.0C   7.8    133   .49   .51   .25   .06    1.22       .03   .03   .00         40.0      103     0    0.4
                                                          37    39    19     5      95         2     2

07/26/77   5050             10.6    63.0F   8.0    121    --    --    --    --      --        --    --    --    --    --
 1130      5050     115E     120    17.2C   7.9                                                                1AF   --
                                                                                                                                                 S
07/26/77   5050             11.2    63.0    8.3    122    --    --    --    --      61        --    --    --    --    --
 1420      5050              127    17.2C   8.3                                   1.22                         2AF   --
                                                                                                                                                 S
07/26/77   5050             11.5    63.0    8.2    128    --    --    --    --      --        --    --    --    --    --
 1730      5050              131    17.2C   7.8                                                                2AF   --
                                                                                                                                                 S
07/26/77   5050             10.8            8.1    118    --    --    --    --      --        --    --    --    --    --
 2200      5050                             8.3                                                                2AF   --
                                                                                                                                                 S
07/27/77   5050                     61.0F   7.7    121    --    --    --    --      61        --    --    --    --    --
 0220      5050                     16.1C   7.7                                   1.22                         2AF   --
                                                                                                                                                 S
07/27/77   5050              9.8    59.0    7.5    124    --    --    --    --      --        --    --    --    --    --
 0550      5050              106    15.0C   7.7                                                                1AF   --
                                                                                                                                                 S
07/27/77   5050              9.7    61.0    7.7    122    --    --    --    --      --        --    --    --    --    --
 1010      5050              108    16.1C   7.8                                                                1AF   --
                                                                                                                                                 S
07/27/77   5050             10.7    61.7F   8.2    121   8.8   6.1   7.6   2.3      59       2.6   1.6   1.2   .00   --       102     47    0.5    E
 1430      5050     100E     120    16.5C   8.1    131   .44   .50   .33   .06    1.18       .05   .05   .02   3AF   --        66      0    0.5    T
                                                          33    35    25     5      91         4     4     2
07/27/77   5050             11.4    62.0F   8.2    127    --    --    --    --      --        --    --    --    --    --
 1815      5050              128    16.7C   8.2                                                                2AF   --
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MINERAL ANALYSES OF SURFACE WATER

AI 6100.00 HAT C NR CASSEL A23B4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CA	MG	NA	K	CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/27/77 2230	5050 5050		10.6 119	62.0F 16.7C	7.9 7.6	126	--	--	--	--	--	--	--	--	-- 6AF	-- --				
07/28/77 0215	5050 5050		9.9 109	60.0F 15.5C	7.9 7.6	126	--	--	--	--	58 1.16	--	--	--	-- 3AF	-- --				S
07/28/77 0815	5050 5050		9.9 110	61.0 16.1C	7.5 7.6	126	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/25/77 0545	5050 5050	120E	8.0 84	56.0F 13.3C	7.5 7.5	125	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/25/77 0940	5050 5050		8.6 90	56.0F 13.3C	7.3 7.5	125	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/25/77 1345	5050 5050		10.3 108	55.0F 12.8C	7.4 7.4	128	--	--	--	--	59 1.18	--	--	--	-- 1AF	-- --				S
08/25/77 1735	5050 5050		9.7 100	55.0 12.8C	7.4 7.4	130	--	--	--	--	--	--	--	--	-- 0AF	-- --				
08/25/77 2140	5050 5050		9.4 98	56.0F 13.3	7.3 7.3	143	--	--	--	--	--	--	--	--	-- 2AF	-- --				
08/26/77 0140	5050 5050		9.2 96	56.0F 13.3C	7.4 7.5	131	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/26/77 0715	5050 5050		9.8 105	58.0F 14.4C	7.8 7.6	131	--	--	--	--	--	--	--	--	-- 1AF	-- --				
09/29/77 1415	5050 5050	130E	9.2 95	55.0F 12.8C	7.1	127	--	--	--	--	60 1.20	--	--	--	-- 1AF	-- --				S
04/11/78 0800	5050 5050				7.5	133	--	--	--	--	62 1.24	--	--	--	-- 1AF	-- --				S

MINERAL ANALYSES OF SURFACE WATER

A1 6100.00 HAT C NR CASSEL

A23B4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MG	NA	K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
05/23/78 1200	5050 5050		9.2 95	55.0F 12.8C	8.0 8.1	131	--	--	7.2 .31 23	--	61 1.22	--	1.5 .04	--	.00	-- --		52		X S
06/29/78 0640	5050 5050		8.7 93	58.1 14.5C	7.3	127	--	--	--	--	--	--	--	--	-- 1AF	-- --				
06/29/78 1110	5050 5050		9.9 109	59.9F 15.5C	7.4 7.9	126	--	--	7.7 .33 26	--	65 1.30	--	.0 .00	--	.00 1AF	-- --		47		S
06/29/78 1540	5050 5050		10.3 113	60.0 15.5C	8.0	117	--	--	--	--	--	--	--	--	-- 1AF	-- --				
06/29/78 1930	5050 5050		10.2 111	59.0F 15.0C	8.2	120	--	--	--	--	--	--	--	--	-- 1AF	-- --				
06/29/78 2330	5050 5050		9.4 102	59.0F 15.0C	7.3	125	--	--	--	--	--	--	--	--	-- 1AF	-- --				
06/30/78 0330	5050 5050		8.8 94	58.0F 14.4C	7.4	118	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/03/78 0645	5050 5050		8.6 97	62.0F 16.7C	7.4	135	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/03/78 1100	5050 5050		9.5 109	64.0F 17.8C	7.6 7.9	132	--	--	7.9 .34 26	--	64 1.28	--	.0 .00	--	.00 0AF	-- --		48		S
08/03/78 1530	5050 5050		10.0 116	65.0 18.3	7.7	122	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/03/78 1845	5050 5050		10.3 117	63.0F 17.2C	8.2	123	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/03/78 2330	5050 5050		9.4 104	61.0F 16.1C	8.3	117	--	--	--	--	--	--	--	--	-- 1AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 6100.00 HAT C NR CASSEL A23B4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
08/04/78 0320	5050 5050		9.0 100	61.0F 16.1C	8.1	116	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/23/78 1500	5050 5050	400E	10.0 106	57.2F 14.0C	8.0 7.9	130	8.4 .42 32	6.6 .54 41	7.3 .32 24	2.0 .05 4	58 1.16	2.3 .05	1.6 .05	--	-- 1AF	-- --	63	48 0	0.5 0.5	S
09/21/78 1200	5050 5050		10.0 102	53.6 12.0C	7.7 7.8	152	--	--	--	--	59 1.18	--	--	--	-- 1AF	-- --				S
10/24/78 1400	5050 5050	300E	10.1 100	51.8 11.0C	7.5 7.7	149	8.6 .43 33	6.2 .51 39	7.6 .33 25	2.1 .05 4	59 1.18	--	--	--	.00 0AF	-- --		47 0	0.5 0.5	S
01/17/79 1605	5050 5050	450E	7.5 67	43.7 6.5C	7.5 7.4	141	--	--	--	--	60 1.20	--	--	--	-- 1AF	-- --				S
05/15/79 1605	5050 5050		11.1 123	61.0 16.1C	8.5	130	--	--	--	--	--	--	--	--	-- 1AF	-- --				
05/15/79 2000	5050 5050		10.9 118	59.0F 15.0C	8.5	130	--	--	--	--	--	--	--	--	-- 1AF	-- --				
05/16/79 0050	5050 5050		9.9 106	58.1F 14.5C	8.5	140 140	--	--	--	--	--	--	--	--	-- 1AF	-- --				
05/16/79 0455	5050 5050		9.1 98	58.1F 14.5C	8.6	135 135	--	--	--	--	62 1.24	--	--	--	-- 1AF	-- --				S
05/16/79 0830	5050 5050		9.5 104	59.9F 15.5C	7.9 8.0	130	--	--	--	--	--	--	--	--	-- 1AF	-- --				
05/16/79 1230	5050 5050		10.1 113	61.7F 16.5C	8.1 7.9	130	--	--	--	--	60 1.20	--	--	--	-- 1AF	-- --				S
05/16/79 1600	5050 5050	75E	10.1 113	62.0F 16.7C	8.1	130	--	--	--	--	--	--	--	--	--	-- --				

Column group headings: MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE (CA through NO3); MILLIGRAMS PER LITER (B through SAR).

MINERAL ANALYSES OF SURFACE WATER

A1 6100.00 HAT C NR CASSEL

A2384 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MG	NA	K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
05/24/79 1455	5050 5050	 500E	10.9 121	60.8F 16.0C	8.2 7.7	133 128	9.0 .45 35	6.0 .49 38	7.0 .30 23	2.2 .06 5	60 1.20 95	1.0 .02 2	1.0 .03 2	.5 .01 1	.00 1AF	-- --	104 63	47 0	0.4 0.5	E T
06/26/79 1325	5050 5050		10.1 114	62.6F 17.0C	8.0	140 142	--	--	--	--	--	--	.7 .02	--	-- 0AF	-- --				S
06/26/79 1730.	5050 5050		11.0 123	61.7 16.5C	8.5 7.9	140 134	--	--	--	--	60 1.20	--	.5 .01	--	-- 0AF	-- --				S
06/26/79 2150	5050 5050		10.4 114	59.9F 15.5C	8.4	130 141	--	--	--	--	--	--	.5 .01	--	-- 1AF	-- --				S
06/27/79 0145	5050 5050		10.4 113	59.0 15.0C	8.4	130 134	--	--	--	--	--	--	.6 .02	--	-- 0AF	-- --				
06/27/79 0520	5050 5050		9.4 102	59.0F 15.0C	8.4 7.9	135 138	--	--	--	--	60 1.20	--	.7 .02	--	-- 0AF	-- --				S
06/27/79 1025	5050 5050	 25E	9.5 109	63.5 17.5C	8.6	140 135	--	--	--	--	--	--	.5 .01	--	-- 1AF	-- --				
07/26/79 1530	5050 5050	 75E				130	--	--	--	--	--	--	--	--	--	-- --				S
07/26/79 1545	5050 5050	 400E	10.0 112	62.1 16.7C	8.1 7.8	130 129	9.0 .45 35	6.0 .49 38	7.0 .30 23	2.2 .06 5	62 1.24	--	--	--	.00 1AF	-- --		47 0	0.4 0.5	S
08/16/79 0850	5050 5050		8.9 97	59.0 15.0C	7.7	125 135	--	--	--	--	--	--	--	--	-- 1AF	-- --				S
08/16/79 1120	5050 5050		9.4 103	59.9F 15.5C	7.7	125 136	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/16/79 1420	5050 5050		10.0 111	60.8F 16.0C	8.4	125 134	--	--	--	--	--	--	--	--	-- 1AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 6100.00 HAT C NR CASSEL A23B4 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE				MILLIGRAMS PER LITER					
08/16/79 1750	5050 5050		11.0 120	58.6F 14.9C	8.3 7.9	130 133	--	--	--	--	50 1.00	--	1.0 .03	--	-- 1AF	-- --				S
08/16/79 2035	5050 5050		11.0 119	57.4 14.1C	8.8	130 134	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/16/79 2340	5050 5050		11.1 118	56.3F 13.5C	8.7	130 135	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/17/79 0235	5050 5050		10.2 109	56.8F 13.8C	8.5	125 136	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/17/79 0525	5050 5050		9.2 99	57.2F 14.0C	8.4 7.7	120 135	--	--	--	--	50 1.00	--	.9 .03	--	-- 1AF	-- --				S
08/17/79 0955	5050 5050		8.9 97	59.4F 15.2C	8.4 7.9	135 138	--	--	8.0 .35 27	--	60 1.20	--	2.0 .06	--	.00 1AF	-- --		48		S
10/23/79 1025	5050 5050		9.2 88	49.1 9.5C	7.3 7.5	135	--	--	14 .61 34	--	74 1.48	--	4.0 .11	--	.00 1AF	-- --		58		S
10/23/79 1400	5050 5050		9.8 93	48.2F 9.0C	7.4	135 135	--	--	--	--	--	--	--	--	-- 1AF	-- --				
10/23/79 1625	5050 5050		10.0 96	49.5F 9.7C	7.5	150 136	--	--	--	--	--	--	--	--	-- 1AF	-- --				
10/23/79 2000	5050 5050		9.8 94	49.5F 9.7C	7.7	145 135	--	--	--	--	--	--	--	--	-- 1AF	-- --				S
10/24/79 0510	5050 5050		9.2 89	49.5F 9.7C	7.5	150 136	--	--	--	--	--	--	--	--	-- 1AF	-- --				S
10/24/79 0820	5050 5950		9.0 87	49.5F 9.7C	7.3 7.7	155 135	--	--	--	--	62 1.24	--	--	--	-- 1AF	-- --				S

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                                              MINERAL ANALYSES OF SURFACE WATER

 DATE     SAMPLER  G.H.   DO     TEMP   FIELD                                 MILLIGRAMS PER LITER         MILLIGRAMS PER LITER
 TIME      LAB      Q     SAT         LABORATORY   MINERAL CONSTITUENTS IN    MILLIEQUIVALENTS PER LITER
                  DEPTH                  PH    EC                             PERCENT REACTANCE VALUE      B     F     TDS     TH    SAR     REM
                                                  CA    MG    NA    K     CACO3     SO4    CL   NO3  TURB  SIO2    SUM    NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

               A1   6100.00        HAT C NR CASSEL                             A23B4 CONTINUED

12/06/79  5050            10.3  45.1F  7.5         9.0   6.0   8.0  2.3    --        --     --   --   .00   --             47   0.5
  1330    5050              94   7.3C        136   .45   .49   .35  .06                                     --
                                                    33    36    26    4                                                              S

               A1   6130.00        HAT C A CARBON                              A23B4

07/14/77  5050                  61  F              8.4   6.3   7.2  2.0     61      2.0     .5   .1   .00   --     100     47   0.5    E
  1300    5050                  16  C  7.8   130   .42   .52   .31  .05   1.22      .04    .01  .00         --      63      0   0.5    T
                                                    32    40    24    4     96        3      1

               A1   6450.00        HAT C NR HAT C                              A23B4

02/18/55  5050     2.55    9.7  44.0   7.8          11   7.4   9.4  2.9     77      4.4    1.5   .2   .07   .1             58   0.5
  1330    5000      153     92   6.7C  7.5   155   .55   .61   .41  .07   1.54      .09    .04  .00   2E  47.0    130      0   0.6
                                                    34    37    25    4     92        5      2

07/29/56  5000                  46.0F  7.3         9.2   6.7   7.6  2.6     69      1.0    1.2   .1   .00   .2             50   0.5
  0845    5000                   7.8C  7.3   131   .46   .55   .33  .07   1.38      .02    .03  .00        43.0    113      0   0.5
                                                    33    39    23    5     97        1      2

05/10/60  5050     3.75    9.3  54.0F  7.3         8.8   5.6   6.5  2.2     59      3.0     .7   .3   .04   .1             45   0.4
  1405    5050     160E    101  12.2C  7.8   126   .44   .46   .28  .06   1.18      .06    .02  .00        44.0    107      0   0.4
                                                    35    37    23    5     94        5      2

09/13/60  5050     3.44    8.6  49.0F  7.3          10   7.8   9.0  3.1     74      2.8    1.6   .3   .08   .1             57   0.5
  1015    5050     150E     87   9.4C  7.9   154   .50   .64   .39  .08   1.48      .06    .05  .00        28.0    107      0   0.6
                                                    31    40    24    5     93        4      3

04/17/61  5050             9.2  45.0   7.8         9.8   6.2   8.0  2.6     65       .8    1.2   .0   .07   .1             50   0.5
  1250    5050      30E     88   7.2C  7.8   135   .49   .51   .35  .07   1.30      .02    .03  .00        42.0    110      0   0.5
                                                    35    36    25    5     96        1      2

               A1   6895.00        HAT C WF NR MANZANITA LK                    A23B5

07/28/56  5000                  52.0F              7.8   5.0   2.9  1.7     48      4.0     .5   .1   .00   .3             40   0.2
  1615    5000                  11.1C  7.4    85   .39   .41   .13  .04    .96      .08    .01  .00        34.0     85      0   0.2
                                                    40    42    13    4     91        8      1
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MINERAL ANALYSES OF SURFACE WATER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MG	NA	K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	SO4	CL	NO3	B TURB	MILLIGRAMS PER LITER F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
A1	7100.00			FALL R A FALL R MILLS							A23C1									
10/24/57	5050		8.4	54.0F	7.5		12	6.3	13	2.3	82	.8	4.0	.0	.10	.1		56	0.8	
1315	5050		87	12.2C	7.8	170	.60	.52	.57	.06	1.64	.02	.11	.00		36.0	124	0	0.9	
							34	30	33	3	92	1	6							
09/21/62	5050		6.6	64.0F			8.8	7.5	14	2.3	77	.0	4.6	.9	.00	.0	119	53	0.8	E
	5000		77	17.8C	7.8	163	.44	.62	.61	.06	1.54	.00	.13	.01	15E	30.0	114	0	1.0	
							25	36	35	3	92		8	1						
07/26/77	5050		9.0	72.0F	9.1	151	--	--	--	--	--	--	--	--	--	--				
0945	5050		115	22.2C	8.8										2AF	--				
07/26/77	5050		10.6	76.0F	8.4	162	--	--	--	--	75	--	--	--	--	--				
1330	5050		141	24.4C	8.6						1.50				3AF	--				S
07/26/77	5050		11.5	76.0	8.4	155	--	--	--	--	--	--	--	--	--	--				
1640			153	24.4C	9.0										2AF	--				
07/26/77	5050		9.6	73.0F	7.9	155	--	--	--	--	--	--	--	--	--	--				
2100			124	22.8C	8.9										3AF	--				
07/27/77	5050		7.8	72.0F	8.1	157	--	--	--	--	75	--	--	--	--	--				
0050	5050		100	22.2C	8.5						1.50				2AF	--				S
07/27/77	5050		7.1	69.0F	9.0	165	--	--	--	--	--	--	--	--	--	--				
0445			88	20.5C												--				
07/27/77	5050		9.1	71.0F	9.0	150	--	--	--	--	--	--	--	--	--	--				
0920	5050		115	21.6C	8.9										4AF	--				
07/27/77	5050		11.3	76.1F	8.4	153	9.1	7.0	14	2.9	72	3.1	4.2	1.4	.10	--	116	52	0.8	
1340	5050	10E	151	24.5C	7.6	168	.45	.58	.61	.07	1.44	.06	.12	.02	2AF	--	85	0	1.0	T
							26	34	36	4	88	4	7	1						
07/27/77	5050		11.2	75.0F	8.4	155	--	--	--	--	--	--	--	--	--	--				
1730	5050		148	23.9C	8.9										4AF	--				
07/27/77	5050		8.8	73.0F	8.1	160	--	--	--	--	--	--	--	--	--	--				
2130	5050		114	22.8C	8.2										4AF	--				

MINERAL ANALYSES OF SURFACE WATER

A1 7100.00 FALL R A FALL R MILLS A2$_3$C1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN CA	MG	NA	K	MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE CACO3	SO4	CL	NO3	MILLIGRAMS PER LITER B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
07/28/77	5050		8.0	71.0F	8.1	158	--	--	--	--	72	--	--	--	--	--				
0125	5050		101	21.6C	8.6						1.44				2AF	--				S
07/28/77	5050		7.1	70.0F	9.0	157	--	--	--	--	--	--	--	--	--	--				
0700	5050		89	21.1C	8.2										3AF	--				
08/25/77	5050		5.1	67.0F	8.0	156	--	--	--	--	--	--	--	--	--	--				
0500	5050		62	19.4C	7.5										1AF	--				
08/25/77	5050		5.5	67.0F	8.5	156	--	--	--	--	--	--	--	--	--	--				
0900	5050		67	19.4C	7.7										2AF	--				
08/25/77	5050		7.5	68.0F	8.3	161	--	--	--	--	85	--	--	--	--	--				
1300	5050		92	20.0C	7.4						1.70				3AF	--				S
08/25/77	5050		8.1	68.0F	8.0	157	--	--	--	--	--	--	--	--	--	--				
1700	5050		99	20.0C	7.7										2AF	--				
08/25/77	5050		6.3	67.0F	7.7	167	--	--	--	--	--	--	--	--	--	--				
2100	5050		76	19.4C	7.5										2AF	--				
08/26/77	5050		5.4	65.0F	7.6	172	--	--	--	--	--	--	--	--	--	--				
0100	5050		64	18.3C	7.1										5AF	--				
08/26/77	5050		5.5	65.0F	7.9	167	--	--	--	--	73	--	--	--	--	--		55		
0600	5050		65	18.3C	7.5						1.46				2AF	--				S
09/29/77	5050		9.2	60.0F	7.3	159	--	--	--	--	70	--	--	--	--	--				
1330	5050		103	15.5C							1.40				1AF	--				S
05/23/78	5050			62.0F	8.3	160	--	--	11	--	73	--	3.8	--	.08	--		55		
1100	5050			16.7C	8.0				.48		1.46		.11			--				
									30											S
06/29/78	5050		5.5	66.2F	8.8	153	--	--	--	--	--	--	--	--	--	--				
0545	5050		66	19.0C											2AF	--				

MINERAL ANALYSES OF SURFACE WATER

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 DATE     SAMPLER  G.H.    DO     TEMP   FIELD                                              MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME     LAB      Q       SAT           LABORATORY   MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                   DEPTH                 PH    EC                              PERCENT REACTANCE VALUE     B     F      TDS      TH     SAR      REM
                                                      CA     MG     NA     K      CACO3      SO4   CL   NO3   TURB  SIO2    SUM      NCH    ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                 A1  7100.00          FALL R A FALL R MILLS                         A23C1 CONTINUED

06/29/78  5050            8.4  69.8F  8.4   155   --     --     12     --     76         --    2.7  --   .00   --               52
 1010     5050            105  21.0C  8.0                       .52          1.52              .08       1AF   --
                                                                 33                                                                       S

06/29/78  5050           10.9  72.0   8.4   153   --     --     --     --     --         --    --   --   --    --
 1430     5050            135  22.2C                                                                     1AF   --

06/29/78  5050           10.2  71.0F  8.4   144   --     --     --     --     --         --    --   --   --    --
 1835     5050            129  21.6C                                                                     1AF   --

06/29/78  5050            7.5  69.0F  8.1   143   --     --     --     --     --         --    --   --   --    --
 2215     5050             93  20.5C                                                                     1AF   --

06/30/78  5050            5.7  67.0F  8.3   144   --     --     --     --     --         --    --   --   --    --
 0220     5050             69  19.4C                                                                     1AF   --

08/03/78  5050            7.4  71.0F  8.4   151   --     --     --     --     --         --    --   --   --    --
 0550     5050             94  21.6C                                                                     1AF   --

08/03/78  5050            9.3  75.2F  8.2   160   --     --     13     --     78         --    3.0  --   .10   --               53
 0955     5050            123  24.0C  8.0                       .57          1.56              .08       1AF   --
                                                                 35                                                                       S

08/03/78  5050           11.4  78.0   8.3   146   --     --     --     --     --         --    --   --   --    --
 1415     5050            155  25.5C                                                                     1AF   --

08/03/78  5050           11.3  79.0F  8.4   147   --     --     --     --     --         --    --   --   --    --
 1745     5050            155  26.1C                                                                     1AF   --

08/03/78  5050            8.9  75.0F  9.1   149   --     --     --     --     --         --    --   --   --    --
 2220     5050            117  23.9C                                                                     1AF   --

08/04/78  5050            7.5  73.0F  8.7   149   --     --     --     --     --         --    --   --   --    --
 0215     5050             97  22.8C                                                                     1AF   --

05/15/79  5050           12.5  72.5F  9.1         --     --     --     --     --         --    --   --   --    --
 1510     5050            161  22.5C        163                                                          2AF   --
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MINERAL ANALYSES OF SURFACE WATER

A1 7100.00 FALL R A FALL R MILLS A2 C1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
05/15/79 1905	5050 5050		11.1 139	69.8F 21.0C	8.4	 163	--	--	--	--	--	--	--	--	-- 2AF	-- --				
05/15/79 2330	5050 5050		9.9 120	67.1F 19.5C	8.7	165 163	--	--	--	--	--	--	--	--	-- 2AF	-- --				
05/16/79 0340	5050 5050		9.9 118	65.3F 18.5C	8.7 8.1	165 163	--	--	--	--	73 1.46	--	--	--	-- 3AF	-- --				S
05/16/79 0720	5050 5050		9.5 115	67.1 19.5C	8.3	 164	--	--	--	--	--	--	--	--	-- 2AF	-- --				S
05/16/79 1130	5050 5050		12.5 158	70.7 21.5C	8.3 7.9	 163	--	--	--	--	73 1.46	--	--	--	-- 3AF	-- --				S
05/16/79 1330	5050	 50E		72.0 22.2C	8.3	165	--	--	--	--	--	--	--	--	--	-- --				S
06/26/79 1220	5050 5050		10.1 129	71.6 22.0C	9.0	165 168	--	--	--	--	--	--	.8 .02	--	-- 2AF	-- --				S
06/26/79 1630	5050 5050		11.0 141	72.5 22.5C	9.1 8.7	160 167	--	--	--	--	73 1.46	--	.9 .03	--	-- 2AF	-- --				S
06/26/79 2035	5050 5050		10.2 129	70.7 21.5C	9.4	160 161	--	--	--	--	--	--	.9 .03	--	-- 3AF	-- --				
06/27/79 0030	5050 5050		8.3 103	68.9F 20.5C	9.3	160 162	--	--	--	--	--	--	.8 .02	--	-- 3AF	-- --				S
06/27/79 0420	5050 5050		7.3 89	68.0 20.0C	9.4 8.2	160 167	--	--	--	--	74 1.48	--	.9 .03	--	-- 3AF	-- --				S
06/27/79 0830	5050 5050	 8E	8.5 104	68.0F 20.0C	9.2	165 165	--	--	--	--	--	--	.8 .02	--	-- 3AF	-- --				

MINERAL ANALYSES OF SURFACE WATER

A1 7100.00 FALL R A FALL R MILLS A23C1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
							MINERAL CONSTITUENTS IN				MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE				MILLIGRAMS PER LITER					
07/26/79 1400	5050 5050			75.2F 24.0C		164	--	--	--	--	--	--	--	--	--	-- --				
08/16/79 0745	5050 5050		6.2 76	68.0F 20.0C	8.6	165 172	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/16/79 1025	5050 5050		7.3 91	69.8F 21.0C	8.7	165 169	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/16/79 1320	5050 5050		8.9 114	72.5F 22.5C	8.8	165 169	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/16/79 1650	5050 5050		10.2 130	71.4F 21.9C	9.1 8.3	165 172	--	--	--	--	65 1.30	--	1.1 .03	--	-- 1AF	-- --				S
08/16/79 1930	5050 5050		9.7 122	69.8 21.0C	9.1	160 169	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/16/79 2230	5050 5050			68.0F 20.0C	9.0	165 170	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/17/79 0130	5050 5050		6.8 83	67.5F 19.7C	8.7	155 168	--	--	--	--	--	--	--	--	-- 1AF	-- --				
08/17/79 0420	5050 5050		6.0 73	66.6F 19.2C	8.7 7.9	160 171	--	--	--	--	65 1.30	--	1.1 .03	--	-- 1AF	-- --				S
08/17/79 0755	5050 5050		6.2 75	66.9 19.4C	8.7 7.7	170 170	--	--	14 .61 29	--	75 1.50	--	6.0 .17	--	.10 1AF	-- --		74		S
10/23/79 0925	5050 5050		6.8 70	52.7F 11.5C	7.3 7.7	170 167	--	--	29 1.26 42	--	118 2.36	--	8.0 .23	--	.10 2AF	-- --		87		S
10/23/79 1220	5050 5050		7.0 71	51.8 11.0C	7.5	170 168	--	--	--	--	--	--	--	--	-- 2AF	-- --				S

MINERAL ANALYSES OF SURFACE WATER

MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE — MILLIGRAMS PER LITER

A1 7100.00 FALL R A FALL R MILLS A23C1 CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
10/23/79	5050		7.9	54.0F	7.3	175	--	--	--	--	--	--	--	--	--	--				
1520	5050		82	12.2C		166									2AF	--				
																				S
10/23/79	5050		7.7	53.6F	7.5	180	--	--	--	--	--	--	--	--	--	--				
1900	5050		80	12.0C		168									2AF	--				
																				S
10/24/79	5050		6.5	52.5	7.3	180	--	--	--	--	--	--	--	--	--	--				
0420	5050		66	11.4C		168									2AF	--				
																				S
10/24/79	5050		6.4	50.5	7.1	190	--	--	--	--	76	--	--	--	--	--				
0725	5050		64	10.3C	7.5	168					1.52				2AF	--				
																				S
01/18/80	5050		10.3	41.9	7.1	120	7.0	4.0	8.0	1.9	48	--	3.0	--	.00	--		34	0.6	
1010	5050		91	5.5C	7.8	110	.35	.33	.35	.05	.96		.08		18A	--		0	0.5	
							32	31	32	5										S

A1 7106.00 FALL R A DIV DM NR FALL R MILLS A23C1

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CACO3	SO4	CL	NO3	B TURB	F SIO2	TDS SUM	TH NCH	SAR ASAR	REM
03/17/52	5050						10	6.6	11	2.2	71	2.8	5.0	.2	.00	.0		52	0.7	
1015	5000	1370			8.1	152	.50	.54	.48	.06	1.42	.06	.14	.00		29.0	109	0	0.7	
							32	34	30	4	88	4	9							
11/03/52	5050						8.8	7.8	12	2.6	77	2.8	3.5	.4	.16	.1		54	0.7	
1130	5000	1230			7.8	160	.44	.64	.52	.07	1.54	.06	.10	.01		36.0	120	0	0.8	
							26	38	31	4	90	4	6	1						
03/02/55	5050		4.7	46.0F	7.5		11	6.2	13	2.9	75	2.1	4.2	1.8	.05	.1		53	0.8	
1340	5000	1137	44	7.8C	6.8	162	.55	.51	.57	.07	1.50	.04	.12	.03	4E	34.0	120	0	0.9	
							32	30	34	4	89	2	7	2						
06/25/58	5050			64.0F			9.6	7.5	12	2.6	72	5.8	5.0	.5	.00	.2		55	0.7	
1045	5000			17.8C	8.1	155	.48	.62	.52	.07	1.44	.12	.14	.01		31.0	117	0	0.8	
							28	37	31	4	84	7	8	1						
08/31/59	5050			70.0F			11	6.4	13	2.7	77	.0	4.5	1.3	.12	.1		54	0.8	
1310	5050	350E		21.1C	7.2	170	.55	.53	.57	.07	1.54	.00	.13	.02		29.0	114	0	0.9	
							32	31	33	4	91		8	1						
05/10/60	5050		9.5	61.0F	8.1		10	6.6	12	2.1	71	1.3	3.5	.4	.08	.0		52	0.7	
1535	5050		108	16.1C	7.8	158	.50	.54	.52	.05	1.42	.03	.10	.01		33.0	112	0	0.8	
							31	34	32	3	91	2	6	1						

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                                        MINERAL ANALYSES OF SURFACE WATER

 DATE    SAMPLER  G.H.    DO     TEMP   FIELD                                 MILLIGRAMS PER LITER       MILLIGRAMS PER LITER
 TIME     LAB      Q     SAT           LABORATORY  MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                 DEPTH                  PH     EC                           PERCENT REACTANCE VALUE    B     F     TDS    TH    SAR     REM
                                                    CA    MG    NA    K     CACO3    SO4    CL   NO3  TURB  SIO2   SUM   NCH   ASAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

               A1  7345.00        FALL R BL SPR C                           A23C2

06/24/58  5050                 60.0F                 7.6   6.6    10   2.4     62      3.8   4.0    .3   .00   .0                 62   0.6
  1400    5000     300E        15.5C   8.1    138    .38   .54   .44   .06   1.24     .08   .11   .00        36.0   108      0   0.6
                                                      27    38    31     4     87        6     8

               A1  7350.00        FALL R AB BIG LK                          A23C1

08/31/59  5050                 65.0F                 9.8   5.7    11   2.3     68       .0   4.4    .6   .13   .1                 48   0.7
  1340    5050     500E        18.3C   7.4    150    .49   .47   .48   .06   1.36     .00   .12   .01        36.0   111      0   0.7
                                                      33    31    32     4     91              8     1

               A1  7941.00        MCARTHUR CA A MCARTHUR                    A23C1

09/27/62  5050                                        11   7.9    16   2.4     87      3.0   6.0    .9   .00   .0    141     60   0.9     E
  0920    5000                         8.1    178    .55   .65   .70   .06   1.74     .06   .17   .01   3E   34.0   133      0   1.1
                                                      28    33    36     3     88        3     9     1

06/29/78  5050             7.6 64.4F   8.4    165     --    --    --    --     --       --    --    --    --    --
  0535    5050              89 18.0C                                                                     1AF   --

06/29/78  5050             7.5 67.1    8.2    167     --    --    --    --     --       --    --    --    --    --
  0950    5050              91 19.5C                                                                     1AF   --

06/29/78  5050            11.3 71.0F   8.4    163     --    --    --    --     --       --    --    --    --    --
  1415    5050             143 21.6C                                                                     1AF   --

06/29/78  5050            13.1 70.0F   8.4    165     --    --    --    --     --       --    --    --    --    --
  1820    5050             164 21.1C                                                                     1AF   --

06/29/78  5050             9.7 68.0F   8.1    170     --    --    --    --     --       --    --    --    --    --
  2200    5050             119 20.0C                                                                     1AF   --

06/30/78  5050             7.4 66.0F   8.1    158     --    --    --    --     --       --    --    --    --    --
  0200    5050              89 18.9C                                                                     1AF   --
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APPENDIX B

NUTRIENT ANALYSIS OF SURFACE WATER

NUTRIENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
A1 L 100.6 136.4				LK BRITTON UP SECTION 27 CG						A23B1					
08/11/77 1000	5050 5050		20.0C 0	144 8.6			--	-- 0.00	-- --	-- --	0.3	--	0.02 --	-- 0.08	
08/11/77 1010	5050 5050		17.4C 20	144 8.4			--	-- 0.01	-- --	-- --	0.3	--	0.03 --	-- 0.08	
09/07/77 1330	5050 5050		18.2C 0	151 8.6			--	-- 0.01	-- 0.2	-- 0.08	0.28	--	0.02 --	-- 0.08	
09/07/77 1340	5050 5050		16.9C 26	149 8.4			--	-- 0.02	-- 0.2	-- 0.07	0.27	--	0.03 --	-- 0.11	
09/21/77 1200	5050 5050		16.0C 0	149 8.2			--	-- 0.05	-- 0.1	-- 0.10	0.20	--	0.05 --	-- 0.07	
09/21/77 1210	5050 5050		14.0C 20	153 7.9			--	-- 0.04	-- 0.1	-- 0.06	0.16	--	0.03 --	-- 0.10	
10/11/77 1430	5050 5050		14.9C 0	155 8.1			--	-- 0.04	-- 0.1	-- 0.04	0.14	--	0.02 --	-- 0.07	
10/11/77 1440	5050 5050		12.3C 20	150 8.1			--	-- 0.03	-- 0.0	-- 0.02	0.02	--	0.02 --	-- 0.09	
10/25/77 1300	5050 5050		12.2C 0	154 7.9			--	-- 0.07	-- 0.1	-- 0.00	0.1	--	0.02 --	-- 0.06	
10/25/77 1310	5050 5050		11.6C 20	155 7.9			--	-- 0.06	-- 0.1	-- 0.00	0.1	--	0.04 --	-- 0.06	
11/29/77 1535	5050 5050		9.0C 0	165 7.5			--	-- 0.12	-- 0.2	-- 0.03	0.23	--	0.06 --	-- 0.07	
11/29/77 1545	5050 5050		8.8C 26	167 7.5			--	-- 0.11	-- 0.2	-- 0.01	0.21	--	0.06 --	-- 0.07	
05/09/78 1130	5050 5050		15.3C 0	133 8.0			--	-- 0.06	-- 0.6	-- 0.01	0.61	--	0.02 --	-- 0.07	
05/09/78 1140	5050 5050		13.8C 26	128 8.0			--	-- 0.06	-- 0.7	-- 0.02	0.72	--	0.02 --	-- 0.08	
06/21/78 1145	5050 5050		18.8C 0	144 8.4			--	-- 0.01	-- 0.3	-- 0.00	0.3	--	0.03 --	-- 0.06	
06/21/78 1150	5050 5050		16.6C 26	144 8.2			--	-- 0.02	-- 0.3	-- 0.03	0.33	--	0.04 --	-- 0.06	

NUTRIENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

A1 L 100.6 136.4 LK BRITTON UP SECTION 27 CG A23B1 CONTINUED

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
07/24/78 1530	5050 5050		24.0C 0	151 8.6			--	-- 0.00	-- 0.4	-- 0.02	0.42	--	0.01 --	-- 0.05	
07/24/78 1540	5050 5050		14.8C 33	139 8.3			--	-- 0.06	-- 0.1	-- 0.00	0.1	--	0.04 --	-- 0.05	
08/23/78 1330	5050 5050		15.4C 0	157 8.6			--	-- 0.02	-- 0.2	-- 0.01	0.21	--	0.04 --	-- 0.06	
08/23/78 1340	5050 5050		10.6C 30	145 8.3			--	-- 0.05	-- 0.2	-- 0.00	0.2	--	0.04 --	-- 0.06	
09/20/78 1230	5050 5050		13.0C 0	177 8.9			--	-- 0.02	-- 0.2	-- 0.05	0.25	--	0.05 --	-- 0.05	
09/20/78 1240	5050 5050		11.2C 30	161 8.0			--	-- 0.03	-- 0.1	-- 0.04	0.14	--	0.06 --	-- 0.06	
10/24/78 1210	5050 5050		12.2C 0	184 8.1			--	-- 0.03	-- 0.1	-- 0.02	0.12	--	0.04 --	-- 0.05	
10/24/78 1220	5050 5050		11.2C 26	177 9.0			--	-- 0.04	-- 0.1	-- 0.01	0.11	--	0.05 --	-- 0.06	
12/14/78 1330	5050 5050		6.9C 0	156 7.6			0.11	-- --	-- --	0.02 --	0.2	--	0.04 --	-- 0.06	
12/14/78 1340	5050 5050		6.8C 23	156 7.6			0.12	-- --	-- --	0.02 --	0.2	--	0.03 --	-- 0.06	
01/17/79 1015	5050 5050		6.8C 0	174 7.7			0.16	-- --	-- --	0.03 --	1.8	--	0.05 --	-- 0.10	
01/17/79 1025	5050 5050		6.8C	177 7.7			0.16	-- --	-- --	0.04 --	0.2	--	0.06 --	-- 0.08	
05/24/79 1330	5050 5050		20.3C 0	160 8.6			0.01	-- --	-- --	0.01 --	0.4	--	0.02 --	-- 0.09	
05/24/79 1340	5050 5050		15.4C 26	154 8.0			0.04	-- --	-- --	0.01 --	0.2	--	0.04 --	-- 0.08	
06/28/79 1430	5050 5050		19.8C 0	154 8.7			0.00	-- --	-- --	0.01 --	0.2	--	0.02 --	-- 0.06	
06/28/79 1440	5050 5050		18.5C 23	153 8.6			0.01	-- --	-- --	0.02 --	0.2	--	0.03 --	-- 0.07	

NUTRIENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
		A1 L 100.6 136.4		LK BRITTON UP SECTION 27 CG						A23B1 CONTINUED					
07/26/79 1300	5050 5050		22.0C 0	154			0.00	-- --	-- --	0.04 --	0.3	--	0.02 --	-- 0.06	
07/26/79 1310	5050 5050		15.8C 30	143			0.04	-- --	-- --	0.04 --	0.2	--	0.04 --	-- 0.06	
09/04/79 1235	5050 5050		17.4C 0	158 8.5			0.02	-- --	-- --	0.01 --	0.2	--	0.01 --	-- 0.07	
09/04/79 1245	5050 5050		15.3C 30	154 8.4			0.04	-- --	-- --	0.03 --	0.2	--	0.01 --	-- 0.07	
12/05/79 1315	5050 5050		7.2C 0	 7.7			0.12	-- --	-- --	0.03 --	0.2	--	0.04 --	-- 0.08	
12/05/79 1325	5050 5050		7.1C 16	 7.7			0.12	-- --	-- --	0.02 --	0.2	--	0.04 --	-- 0.08	
		A1 L 101.2 137.5		LK BRITTON UP BOAT RAMP						A23B1					
05/20/75 0945	5050 5050		16.0C 0	134 7.7			--	-- 0.08	-- --	-- --	0.2	--	-- --	-- 0.07	
07/01/77 1100	5050 5050		24.5C 0	 10.0			--	-- 0.00	-- --	-- --	2.0	--	0.00 --	-- 0.20	
07/01/77 1110	5050 5050		21.0C 10				--	-- 0.02	-- --	-- --	0.2	--	0.06 --	-- 0.07	
		A1 L 101.3 139.9		LK BRITTON A FY XING						A23B1					
08/10/77 1230	5050 5050		23.9C 0	148 8.4			--	-- 0.00	-- --	-- --	0.6	--	0.02 --	-- 0.05	
08/10/77 1240	5050 5050		13.1C 85	152 7.0			--	-- 0.00	-- --	-- --	0.5	--	0.23 --	-- 0.40	
09/07/77 0900	5050 5050		19.1C 0	152 8.4			--	-- 0.01	-- 0.3	-- 0.20	0.50	--	0.01 --	-- 0.13	
09/07/77 0910	5050 5050		13.7C 82	155 7.0			--	-- 0.00	-- 0.2	-- 0.43	0.63	--	0.10 --	-- 0.25	
09/21/77 0830	5050 5050		15.8C 0	143 8.3			--	-- 0.00	-- 0.2	-- 0.13	0.33	--	0.01 --	-- 0.06	
09/21/77 0840	5050 5050		13.2C 66	132 7.6			--	-- 0.06	-- 0.1	-- 0.08	0.18	--	0.02 --	-- 0.06	

NUTRIENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

A1 L 101.3 139.9 LK BRITTON A FY XING A23B1 CONTINUED

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
10/11/77	5050		14.1C	152			--	--	--	--		--	0.02	--	
1015	5050		0	8.3				0.00	0.1	0.03	0.13		--	0.08	
10/11/77	5050		11.1C	96			--	--	--	--		--	0.02	--	
1025	5050		85	7.5				0.06	0.1	0.07	0.17		--	0.10	
10/25/77	5050		12.5C	152			--	--	--	--		--	0.02	--	
1100	5050		0	8.2				0.01	0.2	0.00	0.2		--	0.05	
10/25/77	5050		10.4C	138			--	--	--	--		--	0.05	--	
1110	5050		82	7.7				0.08	0.2	0.04	0.24		--	0.05	
11/29/77	5050		8.5C	158			--	--	--	--		--	0.04	--	
1150	5050		0	7.6				0.11	0.2	0.00	0.2		--	0.06	
11/29/77	5050		7.0C	164			--	--	--	--		--	0.05	--	
1200	5050		82	7.5				0.10	0.2	0.04	0.24		--	0.06	
02/01/78	5050		7.4C	135			--	--	--	--		--	0.05	--	
1040	5050		0					0.12	0.2	0.05	0.25		--	0.06	
02/01/78	5050		6.7C	140			--	--	--	--		--	0.05	--	
1050	5050		72					0.13	0.2	0.04	0.24		--	0.07	
05/09/78	5050		15.8C	126			--	--	--	--		--	0.02	--	
1340	5050		0	8.1				0.01	0.3	0.00	0.3		--	0.07	
05/09/78	5050		10.3C	114			--	--	--	--		--	0.04	--	
1350	5050		85	7.1				0.08	0.6	0.09	0.69		--	0.10	
06/21/78	5050		20.2C	144			--	--	--	--		--	0.02	--	
1520	5050		0	8.3				0.01	0.3	0.00	0.3		--	0.05	
06/21/78	5050		12.0C	139			--	--	--	--		--	0.20	--	
1530	5050		84	6.9				0.23	0.2	0.05	0.25		--	0.26	
07/24/78	5050		25.0C	151			--	--	--	--		--	0.01	--	
0915	5050		0	9.8				0.01	1.2	0.04	1.24		--	0.06	
07/24/78	5050		12.2C	145			--	--	--	--		--	0.17	--	
0925	5050		87	7.1				0.24	0.1	0.13	0.23		--	0.22	
08/23/78	5050		20.0C	155			--	--	--	--		--	0.02	--	
1000	5050		0	8.6				0.01	0.3	0.01	0.31		--	0.05	
08/23/78	5050		14.1C	157			--	--	--	--		--	0.30	--	
1010	5050		79	7.0				0.02	0.3	0.43	0.73		--	0.32	

NUTRIENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

A1 L 101.3 139.9 LK BRITTON A FY XING A2381 CONTINUED

DATE TIME	SAMP LAB	C.H. Q	TEMP DEPTH	F SC F PH	TOPH F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
09/20/78	5050		14.2C	174			--	--	--	--		--	0.04	--	
1000	5050		0	8.4				0.00	0.2	0.01	0.21		--	0.05	
09/20/78	5050		11.8C	164			--	--	--	--		--	0.04	--	
1010	5050		79	7.8				0.04	0.2	0.05	0.25		--	0.06	
10/24/78	5050		12.5C	183			--	--	--	--		--	0.03	--	
0900	5050		0	8.4				0.00	0.3	0.02	0.32		--	0.06	
10/24/78	5050		10.8C	165			--	--	--	--		--	0.03	--	
0910	5050		85	7.4				0.06	0.1	0.07	0.17		--	0.06	
12/14/78	5050		5.6C	152			0.11	--	--	0.01		--	0.04	--	
1100	5050		0	7.7				--	--	--	0.2		--	0.05	
12/14/78	5050		5.1C	161			0.12	--	--	0.02		--	0.04	--	
1110	5050		82	7.7				--	--	--	0.2		--	0.06	
01/17/79	5050		7.3C	149			0.17	--	--	0.02		--	0.04	--	
1230	5050		0	7.5				--	--	--	0.2		--	0.06	
01/17/79	5050		7.0C	167			0.19	--	--	0.04		--	0.06	--	
1240	5050		79	7.5				--	--	--	0.3		--	0.08	
05/24/79	5050		20.3C	162			0.00	--	--	0.02		--	0.03	--	
0930	5050		0	8.6				--	--	--	0.5		--	0.12	
05/24/79	5050		10.9C	145			0.14	--	--	0.08		--	0.05	--	
0940	5050		82	7.2				--	--	--	0.3		--	0.09	
06/28/79	5050		23.4C	159			0.00	--	--	0.01		--	0.00	--	
1100	5050		0	9.3				--	--	--	1.5		--	0.09	
06/28/79	5050		11.5C	152			0.21	--	--	0.04		--	0.10	--	
1110	5050		85	7.2				--	--	--	0.3		--	0.14	
07/26/79	5050		23.1C	154			0.00	--	--	0.01		--	0.00	--	
0900	5050		0	9.1				--	--	--	0.7		--	0.04	
07/26/79	5050		12.0C	154			0.07	--	--	0.14		--	0.20	--	
0910	5050		85	7.0				--	--	--	0.4		--	0.32	
09/04/79	5050		18.7C	157			0.01	--	--	0.01		--	0.00	--	
0845	5050		0	8.9				--	--	--	0.6		--	0.08	
09/04/79	5050		13.0C	153			0.04	--	--	0.27		--	0.06	--	
0855	5050		89	7.3				--	--	--	0.6		--	0.18	

NUTRIENT ANALYSES OF SURFACE WATER

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	CONSTITUENTS IN MILLIGRAMS PER LITER D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
A1 L 101.3 139.9 LK BRITTON A FY XING									A23B1 CONTINUED						
12/05/79	5050		6.9C				0.13	--	--	0.01		--	0.03	--	
1045	5050		0	7.7				--	--	--	0.1		--	0.06	
12/05/79	5050		6.5C				0.13	--	--	0.03		--	0.04	--	
1055	5050		82	7.5				--	--	--	0.1		--	0.08	
A1 L 101.3 140.5 LK BRITTON									A23B1						
08/26/77	5050		66.0F	156			--	--	--	--		--	0.03	--	
0740	5050			7.2				0.03	--	--	0.5		--	0.03	
A1 L 101.9 138.8 LK BRITTON OPP PICNIC AREA									A23B1						
09/07/77	5050		20.1C	153			--	--	--	--		--	0.03	--	
1200	5050		0	8.6				0.01	0.2	0.03	0.23		--	0.11	
09/07/77	5050		14.5C	140			--	--	--	--		--	0.03	--	
1210	5050		59	7.9				0.06	0.1	0.12	0.22		--	0.16	
09/21/77	5050		15.9C	145			--	--	--	--		--	0.02	--	
1000	5050		0	8.3				0.00	0.2	0.08	0.28		--	0.10	
09/21/77	5050		14.2C	151			--	--	--	--		--	0.04	--	
1010	5050		39	7.9				0.04	0.1	0.18	0.28		--	0.07	
10/11/77	5050		18.0C	150			--	--	--	--		--	0.02	--	
1500	5050		0	8.7				0.01	0.1	0.04	0.14		--	0.08	
10/11/77	5050		13.8C	154			--	--	--	--		--	0.02	--	
1510	5050		46	8.0				0.03	0.1	0.03	0.13		--	0.07	
10/25/77	5050		12.8C	151			--	--	--	--		--	0.02	--	
1200	5050		0	8.2				0.01	0.2	0.00	0.2		--	0.06	
10/25/77	5050		10.6C	141			--	--	--	--		--	0.03	--	
1210	5050		59	7.7				0.08	0.2	0.01	0.21		--	0.05	
11/29/77	5050		9.5C	164			--	--	--	--		--	0.05	--	
1400	5050		9	7.6				0.12	0.1	0.00	0.1		--	0.06	
11/29/77	5050		7.9C	162			--	--	--	--		--	0.05	--	
1410	5050		56	7.5				0.10	0.1	0.01	0.11		--	0.06	
02/01/78	5050		7.6C	152			--	--	--	--		--	0.06	--	
1220	5050		0					0.13	0.2	0.02	0.22		--	0.07	
02/01/78	5050		6.8C	146			--	--	--	--		--	0.05	--	
1230	5050		56					0.15	0.2	0.06	0.26		--	0.08	

NUTRIENT ANALYSES OF SURFACE WATER

A1 L 101.9 138.8 LK BRITTON CPP PICNIC AREA A23B1 CONTINUED

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
05/09/78 1500	5050 5050		15.7C 0	135 8.1			--	-- 0.04	-- 0.3	-- 0.00	0.3	--	0.02 --	-- 0.08	
05/09/78 1510	5050 5050		11.9C 62	111 7.5			--	-- 0.08	-- 0.5	-- 0.00	0.5	--	0.02 --	-- 0.05	
06/21/78 1400	5050 5050		20.3C 0	145 8.3			--	-- 0.01	-- 0.4	-- 0.00	0.4	--	0.02 --	- 0.05	
06/21/78 1410	5050 5050		12.8C 64	142 7.1			--	-- 0.13	-- 0.3	-- 0.12	0.42	--	0.14 --	-- 0.18	
07/24/78 1315	5050 5050		24.0C 0	148 9.8			--	-- 0.00	-- 0.8	-- 0.02	0.82	--	0.00 --	-- 0.05	
07/24/78 1325	5050 5050		13.6C 63	150 7.2			--	-- 0.31	-- 0.2	-- 0.12	0.32	--	0.25 --	-- 0.25	
08/23/78 1130	5050 5050		20.3C 0	154 8.5			--	-- 0.01	-- 0.2	-- 0.05	0.25	--	0.03 --	-- 0.05	
08/23/78 1140	5050 5050		15.9C 59	142 8.2			--	-- 0.08	-- 0.2	-- 0.05	0.25	--	0.04 --	-- 0.06	
09/20/78 1100	5050 5050		14.6C 0	176 8.3			--	-- 0.00	-- 0.2	-- 0.00	0.2	--	0.02 --	-- 0.04	
09/20/78 1110	5050 5050		11.8C 62	162 7.8			--	-- 0.04	-- 0.2	-- 0.04	0.24	--	0.03 --	-- 0.05	
10/24/78 1030	5050 5050		12.7C 0	182 8.2			--	-- 0.00	-- 0.2	-- 0.00	0.2	--	0.04 --	-- 0.05	
10/24/78 1040	5050 5050		11.1C 59	168 7.4			--	-- 0.07	-- 0.1	-- 0.09	0.19	--	0.04 --	-- 0.05	
12/14/78 1230	5050 5050		6.2C 0	162 7.8			0.12	-- --	-- --	0.02 --	0.2	--	0.04 --	-- 0.06	
12/14/78 1240	5050 5050		5.2C 59	162 7.8			0.11	-- --	-- --	0.02 --	0.2	--	0.03 --	-- 0.06	
01/17/79 1340	5050 5050		7.7C 0	172 7.5			0.18	-- --	-- --	0.06 --	0.3	--	0.06 --	-- 0.08	
01/17/79 1350	5050 5050		6.9C 59	178 7.5			0.18	-- --	-- --	0.04 --	0.3	--	0.06 --	-- 0.08	

NUTRIENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

A1 4 101.9 138.8 LK BRITTON CPP PICNIC AREA A23B1 CONTINUED

DATE TIME	SAMP LAB	G.H. Q.	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
05/24/79 1150	5050 5050		22.3C 0	164 8.6			0.00	-- --	-- --	0.01 --	 0.2	--	0.01 --	-- 0.07	
05/24/79 1200	5050 5050		12.1C 59	157 7.3			0.06	-- --	-- --	0.10 --	 0.3	--	0.06 --	-- 0.09	
06/28/79 1245	5050 5050		22.4C 0	148 9.1			0.00	-- --	-- --	0.02 --	 0.7	--	0.00 --	-- 0.06	
06/28/79 1255	5050 5050		13.2C 56	146 7.5			0.12	-- --	-- --	0.09 --	 0.3	--	0.09 --	-- 0.12	
07/26/79 1115	5050 5050		24.3C 0	154 9.1			0.00	-- --	-- --	0.01 --	 0.7	--	0.00 --	-- 0.05	
07/26/79 1125	5050 5050		13.0C 66	150 7.0			0.14	-- --	-- --	0.17 --	 0.3	--	0.24 --	-- 0.28	
09/04/79 1045	5050 5050		19.3C 0	157 8.9			0.01	-- --	-- --	0.01 --	 0.7	--	0.00 --	-- 0.09	
09/04/79 1055	5050 5050		13.1C 66	144 8.3			0.08	-- --	-- --	0.06 --	 0.3	--	0.00 --	-- 0.07	
12/05/79 1145	5050 5050		7.5C 0	 7.7			0.13	-- --	-- --	0.02 --	 0.2	--	0.04 --	-- 0.08	
12/05/79 1155	5050 5050		6.4C 66	 7.3			0.13	-- --	-- --	0.07 --	 0.3	--	0.05 --	-- 0.10	

A1 1188.00 CLARK C A MC A23B1

DATE TIME	SAMP LAB	G.H. Q.	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
08/10/77 1400	5050 5050	 1 E	26.0C	175 8.4			--	-- 0.00	-- --	-- --	 0.4	--	0.01 --	-- 0.06	
09/07/77 1130	5050 5050	 1 E	19.0C	180 8.3			--	-- 0.01	-- 0.2	-- 0.12	 0.32	--	0.01 --	-- 0.09	
09/21/77 1000	5050 5050	 5 E	49 F	197 8.0			--	-- 0.00	-- 0.0	-- 0.08	 0.08	--	0.01 --	-- 0.08	
11/29/77 1340	5050 5050		9.3C 0	159 7.8			--	-- 0.00	-- 0.0	-- 0.00	 0.0	--	0.02 --	-- 0.03	
02/01/78 1200	5050 5050		4.5C 0	70			--	-- 0.00	-- 0.1	-- 0.00	 0.1	--	0.02 --	-- 0.02	
05/09/78 1315	5050 5050	 100 E	13.5C 0	57 7.3			--	-- 0.01	-- 0.1	-- 0.00	 0.1	--	0.01 --	-- 0.02	

NUTRIENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
A1 1188.00 CLARK C A MC									A23B1 CONTINUED						
06/21/78 1320	5050 5050	 20 E	19.5C	133 7.6			--	-- 0.04	-- 0.5	-- 0.01	0.51	--	0.02 --	-- 0.04	
08/23/78 0945	5050 5050	 3 E	13.5C	176 7.9			--	-- 0.01	-- 0.1	-- 0.01	0.11	--	0.03 --	-- 0.04	
09/21/78 0930	5050 5050		11.5C	198 7.9			--	-- 0.00	-- 0.1	-- 0.01	0.11	--	0.02 --	-- 0.03	
10/24/78 1015	5050 5050	 8 E	10.0C	192 8.0			--	-- 0.00	-- 0.2	-- 0.00	0.2	--	0.03 --	-- 0.03	
01/17/79 1200	5050 5050	 5 E	5.0C	151 7.9			0.02	-- --	-- --	0.02 --	0.1	--	0.01 --	-- 0.03	
05/24/79 1100	5050 5050	 15 E	14.0C	86 7.5			0.00	-- --	-- --	0.01 --	0.0	--	0.00 --	-- 0.02	
06/28/79 1200	5050 5050	 15 E	21.0C	168 8.1			0.00	-- --	-- --	0.02 --	0.0	--	0.01 --	-- 0.03	
07/26/79 1100	5050 5050	 15 E	19.2C	177 8.0			0.00	-- --	-- --	0.01 --	0.0	--	0.01 --	-- 0.03	
12/05/79 1130	5050 5050	 .4 E	7.3C	 8.1			0.01	-- --	-- --	0.00 --	0.0	--	0.01 --	-- 0.04	
A1 1191.00 CAYTON C A MO									A23B1						
08/10/77 1530	5050 5050	 2 E	18.8C	240 8.0			--	-- 0.18	-- --	-- --	0.1	--	0.11 --	-- 0.15	
09/07/77 1300	5050 5050	 2 E	16 C	218 8.0			--	-- 0.09	-- 0.2	-- 0.04	0.24	--	0.02 --	-- 0.10	
09/21/77 1100	5050 5050	 3 E	53 F	147 7.9			--	-- 0.10	-- 0.2	-- 0.14	0.34	--	0.06 --	-- 0.16	
11/29/77 1505	5050 5050		7.5C 0	144 7.6			--	-- 0.02	-- 0.0	-- 0.00	0.0	--	0.02 --	-- 0.03	
05/09/78 1245	5050 5050	 30 E	15.0C 0	124 7.9			--	-- 0.02	-- 0.3	-- 0.03	0.33	--	0.01 --	-- 0.02	
06/21/78 1500	5050 5050	 10 E	20.5C	128 7.9			--	-- 0.00	-- 0.1	-- 0.00	0.1	--	0.01 --	-- 0.02	
08/23/78 1230	5050 5050	 10 E	14.0C	161 8.0			--	-- 0.04	-- 0.3	-- 0.01	0.31	--	0.03 --	-- 0.04	

NUTRIENT ANALYSES OF SURFACE WATER

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 C NO3	CONSTITUENTS IN MILLIGRAMS PER LITER D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
		A1 1191.00		CAYTON C A MO						A23B1 CONTINUED					
09/21/78	5050		9.0C	185			--	--	--	--		--	0.01	--	
1000	5050			8.0				0.00	0.1	0.00	0.1		--	0.02	
10/24/78	5050		8.5C				--	--	--	--		--	0.02	--	
1110	5050	10 E		7.9				0.01	0.1	0.00	0.1		--	0.02	
01/17/79	5050		2.9C	157			0.12	--	--	0.02		--	0.01	--	
1140	5050	25 E		7.5				--	--	--	0.3		--	0.03	
05/24/79	5050		14.0C	113			0.05	--	--	0.02		--	0.00	--	
1130	5050	35 E		7.9				--	--	--	0.1		--	0.03	
06/28/79	5050		20.0C	233			0.03	--	--	0.03		--	0.02	--	
1230	5050	20 E		8.2				--	--	--	1.1		--	0.09	
07/26/79	5050		18.2C	214			0.11	--	--	0.02		--	0.05	--	
1200	5050	20 E		8.1				--	--	--	0.3		--	0.09	
12/05/79	5050		5.2C				0.04	--	--	0.00		--	0.01	--	
1215	5050	20 E		7.9				--	--	--	0.1		--	0.04	
		A1 1192.00		CAYTON C A HWY 89						A23B1					
07/17/79	5050		19.5C	340			0.00	--	--	0.02		--	0.00	--	
0850	5050	2 E		7.5				--	--	--	1.4		--	0.02	
		A1 1194.00		CAYTON C BL SPR						A23B1					
07/26/79	5050		11.2C	109			0.00	--	--	0.01		--	0.00	--	
0715	5050	10 E		8.6				--	--	--	0.1		--	0.01	
		A1 1195.00		WEST SPR A MO						A23B1					
08/11/77	5050		9.8C	113			--	--	--	--		--	0.04	--	
0950	5050	8 E		7.3				0.10	--	--	0.0		--	0.07	
09/07/77	5050		10 C	118			--	--	--	--		--	0.04	--	
1430	5050			7.3				0.11	0.4	0.46	0.86		--	0.08	
09/21/77	5050		48 F	118			--	--	--	--		--	0.04	--	
1245	5050	8 E		7.3				0.09	0.0	0.37	0.37		--	0.07	
11/29/77	5050		9.1C	117			--	--	--	--		--	0.06	--	
1605	5050	10 E	0	7.3				0.12	0.0	0.00	0.0		--	0.06	
05/09/78	5050		9.5C	100			--	--	--	--		--	0.06	--	
1110	5050	50 E	0	7.3				0.11	0.1	0.00	0.1		--	0.05	

NUTRIENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

A1 .1195.00 WEST SPR A MO A23B1 CONTINUED

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F SC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
06/21/78 1130	5050 5050	40 E	9.5C	115 7.3			--	-- 0.09	-- 0.1	-- 0.02	0.12	--	0.05 --	-- 0.06	
08/23/78 1330	5050 5050	20 E	9.1C	130 7.5			--	-- 0.12	-- 0.0	-- 0.01	0.01	--	0.07 --	-- 0.07	
09/20/78 1500	5050 5050		9.4C	139 7.3			--	-- 0.09	-- 0.1	-- 0.00	0.1	--	0.05 --	-- 0.05	
10/24/78 1235	5050 5050	30 E	9.2C	145 7.2			--	-- 0.11	-- 0.1	-- 0.00	0.1	--	0.06 --	-- 0.06	
01/17/79 1105	5050 5050	20 E	8.7C	122 7.3			0.11	-- --	-- --	0.00 --	0.00	--	0.05 --	-- 0.06	
05/24/79 1300	5050 5050	15 E	9.0C	120 7.3			0.11	-- --	-- --	0.01 --	0.1	--	0.04 --	-- 0.06	
06/28/79 1405	5050 5050	30 E	9.0C	118 7.5			0.10	-- --	-- --	0.01 --	0.00	--	0.05 --	-- 0.05	
07/26/79 1400	5050 5050	35 E	8.7C	118 7.1			0.10	-- --	-- --	0.00 --	0.1	--	0.05 --	-- 0.05	
12/05/79 1300	5050 5050		8.6C	7.5			0.11	-- --	-- --	0.00 --	0.0	--	0.04 --	-- 0.07	

A1 1196.00 EAST SPR A MO A23B1

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F SC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
08/11/77 0930	5050 5050	10 E	9.8C	109 7.5			--	-- 0.09	-- --	-- --	0.1	--	0.05 --	-- 0.07	
09/07/77 1430	5050 5050	10 E	10 C	115 7.4			--	-- 0.11	-- 0.2	-- 0.00	0.2	--	0.05 --	-- 0.10	
09/21/77 1230	5050 5050	8 E	48 F	113 7.3			--	-- 0.10	-- 0.0	-- 0.18	0.18	--	0.05 --	-- 0.05	
11/29/77 1610	5050 5050		9.0C 0	114 7.4			--	-- 0.12	-- 0.0	-- 0.00	0.0	--	0.06 --	-- 0.06	
05/09/78 1100	5050 5050	50 E	9.0C 0	98 7.5			--	-- 0.12	-- 0.1	-- 0.00	0.1	--	0.06 --	-- 0.06	
08/23/78 1200	5050 5050	30 E	9.7C	116 7.9			--	-- 0.12	-- 0.1	-- 0.00	0.1	--	0.07 --	-- 0.07	
09/20/78 1430	5050 5050		9.3C	139 7.4			--	-- 0.10	-- 0.1	-- 0.00	0.1	--	0.05 --	-- 0.06	

NUTRIENT ANALYSES OF SURFACE WATER

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                                            FIELD                    CONSTITUENTS IN MILLIGRAMS PER LITER
 DATE    SAMP    G.H.    TEMP   F EC   TURB   P ALK  D NO2 +   D NO2   D ORG N   D NH3   T NH3 +    DIS     D O-PO4   D TOT P
 TIME     LAB     Q      DEPTH  F PH  F CO2   T ALK    NO3     D NO3   T ORG N   T NH3    ORG N   A.H.PO4   T O-PO4   T TOT P   REM
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                A1  1196.00         EAST SPR A MO                          A23B1 CONTINUED

10/24/78 5050             9.2C  139                  --        --      --        --                   --      0.06      --
  1230   5050    30 E           7.3                            0.11    0.0       0.00     0.0                   --        0.06

01/17/79 5050             9.0C  118                  0.12      --      --        0.00                 --      0.05      --
  1050   5050    40 E           7.3                            --      --        --       0.00                  --        0.06

05/24/79 5050             9.5C  118                  0.12      --      --        0.01                 --      0.04      --
  1255   5050    20 E           7.5                            --      --        --       0.00                  --        0.06

~~06/28/79 5050~~             9.5C  116                  0.11      --      --        0.01                 --      0.06      --
  1415   5050    45 E           7.7                            --      --        --       0.0                   --        0.06

07/26/79 5050             9.1C  114                  0.10      --      --        0.02                 --      0.05      --
  1345   5050    50 E           7.5                            --      --        --       0.0                   --        0.06

12/05/79 5050             8.9C                       0.12      --      --        0.00                 --      0.05      --
  1305   5050                   7.5                            --      --        --       0.0                   --        0.08

                A1  1200.00         PIT R A LK BRITTON                     A23B1

09/07/77 5050             65  F 160                  --        --      --        --                   --      0.02      --
  1600   5050    200 E          8.7                            0.02    0.2       0.08     0.28                  --        0.10

09/21/77 5050             58  F 177                  --        --      --        --                   --      0.03      --
  1340   5050    150 E          8.3                            0.04    0.1       0.07     0.17                  --        0.09

11/29/77 5050             9.5C  173                  --        --      --        --                   --      0.05      --
  1650   5050    200 E    0     7.9                            0.12    0.2       0.00     0.2                   --        0.06

05/09/78 5050            15.0C  137                  --        --      --        --                   --      0.04      --
  1010   5050             0     8.2                            0.05    0.3       0.00     0.3                   --        0.07

                A1  1220.00         PIT R A US 299                         A23B1

08/26/77 5050            15.5C  168                  --        --      --        --                   --      0.02      --
  0700   5050                   8.3                            0.06    --        --       0.3                   --        0.05

05/23/78 5050            15.5C  160                  --        --      --        --                   --      --        --
         5050                   8.4                            --      --        --       0.2                   --        0.06

06/29/78 5050            19.0C  160                  --        --      --        --                   --      0.03      --
  1105   5050                   8.2                            0.23    --        --       0.6                   --        0.05

08/03/78 5050            20.5C  163                  --        --      --        --                   --      0.04      --
  1050   5050                   8.2                            0.07    --        --       0.4                   --        0.05

08/23/78 5050            17.6C  163                  --        --      --        --                   --      0.04      --
  1530   5050    400 E          8.4                            0.01    0.2       0.01     0.21                  --        0.05
```

NUTRIENT ANALYSES OF SURFACE WATER

A1 1220.00 PIT R A US 299 A23B1 CONTINUED

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	CONSTITUENTS IN MILLIGRAMS PER LITER D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
09/21/78 1230	5050 5050		14.2C	187 8.4			--	-- 0.01	-- 0.2	-- 0.02	0.22	--	0.03 --	-- 0.05	
10/24/78 1410	5050 5050	350 E	13.0C	181 8.3			--	-- 0.03	-- 0.2	-- 0.02	0.22	--	0.04 --	-- 0.05	
01/17/79 1550	5050 5050	1000 E	6.5C	180 7.9			0.18	-- --	-- --	0.03 --	0.4	--	0.06 --	-- 0.08	
05/16/79 1430	5050 5050	250 E	66.0F	170 8.3			0.02	-- --	-- --	0.01 --	0.7	--	0.04 --	-- 0.06	
05/24/79 1445	5050 5050	1500 E	19.5C	169 7.7			0.01	-- --	-- --	0.02 --	0.5	--	0.03 --	-- 0.07	
06/27/79 1000	5050 5050		19.5C	170 8.7			0.02	-- --	-- --	0.06 --	0.6	--	0.02 --	-- 0.06	
07/26/79 1530	5050 5050	750 E	20.9C	161 8.8			0.02	-- --	-- --	0.01 --	0.3	--	0.02 --	-- 0.06	
08/17/79 0935	5050 5050		17.3C	165 8.1			0.01	-- --	-- --	0.03 --	0.6	--	0.02 --	-- 0.06	
10/23/79 1015	5050 5050		12.0C	175 7.8			0.27	-- --	-- --	0.13 --	0.5	--	0.06 --	-- 0.13	
12/06/79 1315	5050 5050		7.7C	 8.3			0.11	-- --	-- --	0.02 --	0.2	--	0.03 --	-- 0.08	
01/18/80 1120	5050 5050		4.5C	120 7.4			0.20	-- --	-- --	0.02 --	1.1	--	0.06 --	-- 0.30	

A1 1225.00 PIT R AB PIT 1 PH A23B1

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
08/26/77 0630	5050 5050		62.0F	202 8.4			--	-- 0.14	-- --	-- --	0.6	--	0.06 --	-- 0.06	
10/05/77 0700	5050 5050		55.0F	 7.9			--	-- 0.05	-- 0.1	-- 0.06	0.16	--	0.02 --	-- 0.09	
05/23/78	5050 5050		63.0F	190 8.1			--	-- --	-- --	-- --	0.4	--	-- --	-- 0.11	
06/29/78 1030	5050 5050		19.5C	165 8.2			--	-- 0.13	-- --	-- --	0.4	--	0.04 --	-- 0.06	
08/03/78 1025	5050 5050		21.0C	192 8.3			--	-- 0.01	-- --	-- --	0.6	--	0.02 --	-- 0.08	

NUTRIENT ANALYSES OF SURFACE WATER

DATE	SAMP	G.H.	TEMP	F EC	TURB	FIELD P ALK	D NO2 +	D NO2	D ORG N	D NH3	T NH3 +	DIS	D O-PO4	D TOT P	REM
TIME	LAB	Q.	DEPTH	F PH	F CO2	T ALK	NO3	D NO3	T ORG N	T NH3	ORG N	A.H.PO4	T O-PO4	T TOT P	
		A1 .1225.00		PIT R AB PIT 1 PH						A23B1 CONTINUED					
05/16/79	5050		69.0F	200			0.09	--	--	0.00		--	0.06	--	
1400	5050	200 E		8.1				--	--	--	0.5		--	0.10	
06/27/79	5050		18.5C	205			0.06	--	--	0.04		--	0.03	--	
0920	5050	15 E		8.6				--	--	--	0.9		--	0.07	
08/17/79	5050		16.6C	209			0.07	--	--	0.04		--	0.03	--	
0840	5050			8.1				--	--	--	0.8		--	0.08	
10/23/79	5050		12.5C	225			0.03	--	--	0.00		--	0.00	--	
0955	5050			8.1				--	--	--	0.5		--	0.05	
01/18/80	5050		4.3C	120			0.22	--	--	0.02		--	0.07	--	
1050	5050			7.5				--	--	--	0.9		--	0.24	
		A1 1270.00		PIT R A PITTVILLE						A23C1					
08/26/77	5050		59.0F	271			--	--	--	--		--	0.06	--	
0530	5050			7.4				0.10	--	--	0.3		--	0.07	
05/23/78	5050		63.0F	179			--	--	--	--		--	--	--	
0930	5050			9.0				--	--	--	0.5		--	0.10	
06/29/78	5050		20.0C	227			--	--	--	--		--	0.02	--	
0940	5050			8.0				0.25	--	--	0.4		--	0.04	
08/03/78	5050		14.9C	234			--	--	--	--		--	0.03	--	
0930	5050			7.9				0.02	--	--	0.6		--	0.09	
05/16/79	5050		70.0F	215			0.03	--	--	0.06		--	0.06	--	
1300	5050	200 E		8.1				--	--	--	0.7		--	0.11	
06/27/79	5050		19.5C	200			0.02	--	--	0.05		--	0.02	--	
0800	5050			8.6				--	--	--	0.3		--	0.04	
08/17/79	5050		21.3C	210			0.00	--	--	0.03		--	0.03	--	
0710	5050			8.4				--	--	--	0.5		--	0.07	
10/23/79	5050		12.0C	305			0.19	--	--	0.01		--	0.04	--	
0900	5050			9.1				--	--	--	0.8		--	0.12	
01/18/80	5050	11.00	2.0C	125			0.18	--	--	0.02		--	0.08	--	
0950	5050			7.3				--	--	--	1.0		--	0.27	

NUTRIENT ANALYSES OF SURFACE WATER

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	CONSTITUENTS IN MILLIGRAMS PER LITER D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
	A1	1400.00		PIT R NR BIEBER					A23D1						
05/07/59	5050	2.35	13.3C				--	--	--	--		--	0.05	--	
0900	5000			7.7				--	--	--	--		--	--	
09/09/59	5050	1.61	25.0C				--	--	--	--		--	0.05	--	
1445	5000			8.2				--	--	--	--		--	--	
05/11/61	5050		10.6C				--	--	--	--		--	0.07	--	
0700	5000	8		7.8				--	--	--	--		--	--	
	A1	1415.00		PIT R NR PUMPKIN CENTER					A23D1						
07/14/77	5050		74.0F	425			--	--	--	--		--	0.08	--	
1130	5050	3 E		7.7				0.05	1.4	0.05	1.45		--	0.18	
	A1	1425.00		PIT R A BIEBER					A23D1						
05/07/59	5050	2.35	13.3C				--	--	--	--		--	0.05	--	
0900	5000			7.7				--	--	--	--		--	--	
09/09/59	5050	1.61	25.0C				--	--	--	--		--	0.05	--	
1445	5000			8.2				--	--	--	--		--	--	
05/11/60	5050	3.91	17.8C				--	--	--	--		--	0.13	--	
0820	5000			7.5				--	--	--	--		--	--	
09/08/60	5050	1.68	15.6C				--	--	--	--		--	0.02	--	
0930	5000			8.1				--	--	--	--		--	--	
05/11/61	5050		10.6C				--	--	--	--		--	0.07	--	
0700	5000	8		7.8				--	--	--	--		--	--	
05/02/62	5050	2.75	17.2C				--	--	--	--		--	0.00	--	
1120	5000	67		8.3				--	--	--	--		--	--	
05/13/63	5050	5.81	11.7C				--	--	--	--		--	0.07	--	
1050	5000	1750		7.6				--	--	--	--		--	--	
09/12/63	5050		17.8C				--	--	--	--		--	0.03	--	
1330	5000	18 E		8.3				--	--	--	--		--	--	
05/22/78	5050		62.0F	187			--	--	--	--		--	--	--	
1130	5050			9.0				--	--	--	1.0		--	0.14	
06/28/78	5050		20.0C	255			--	--	--	--		--	0.05	--	
1130	5050			8.0				0.02	--	--	0.8		--	0.12	
08/02/78	5050		26.1C	257			--	--	--	--		--	0.04	--	
1145	5050			8.4				0.02	--	--	1.2		--	0.14	

NUTRIENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

A1 1425.00 PIT R A BIEBER A23D1 CONTINUED

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
05/16/79	5050		21.0C	219			0.07	--	--	0.02		--	0.06	--	
1200	5050	150 E		7.5				--	--	--	0.8		--	0.14	
06/26/79	5050		22.5C	265			0.02	--	--	0.09		--	0.10	--	
1130	5050			8.1				--	--	--	1.2		--	0.20	
08/16/79	5050		20.7C	250			0.03	--	--	0.06		--	0.02	--	
1330	5050			8.9				--	--	--	3.6		--	0.15	
10/23/79	5050		9.5C	290			0.07	--	--	0.00		--	0.12	--	
0740	5050	100 E		8.1				--	--	--	1.1		--	0.27	
01/17/80	5050		4.0C	140			0.23	--	--	0.04		--	0.08	--	
1015	5050			7.1				--	--	--	1.3		--	0.31	

A1 1570.00 PIT R NR LOOKOUT A23D1

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
07/14/77	5050		71.0F	390			--	--	--	--		--	0.15	--	
1045	5050	15 E		7.7				0.04	0.9	0.02	0.92		--	0.31	
08/25/77	5050		17.0C	290			--	--	--	--		--	0.10	--	
0245	5050			7.9				0.19	--	--	0.9		--	0.21	
05/22/78	5050		64.0F	193			--	--	--	--		--	--	--	
1200	5050			7.8				--	--	--	0.6		--	0.13	
06/28/78	5050		19.0C	288			--	--	--	--		--	0.05	--	
1100	5050			8.0				0.01	--	--	0.8		--	0.14	
08/02/78	5050		25.0C	258			--	--	--	--		--	0.05	--	
1120	5050			8.2				0.02	--	--	1.1		--	0.16	
05/16/79	5050		68.0F	190			0.08	--	--	0.02		--	0.07	--	
1130	5050	210		7.5				--	--	--	1.3		--	0.15	
06/26/79	5050		22.0C	260			0.02	--	--	0.07		--	0.10	--	
1055	5050			8.1				--	--	--	1.1		--	0.18	
08/16/79	5050		19.5C	275			0.02	--	--	0.03		--	0.04	--	
1300	5050	30 E		8.6				--	--	--	3.0		--	0.14	
10/23/79	5050		8.0C	400			0.13	--	--	0.02		--	0.09	--	
0715	5050	90 E		9.3				--	--	--	1.1		--	0.22	
01/17/80	5050		4.5C	125			0.25	--	--	0.13		--	0.09	--	
1045	5050			7.2				--	--	--	1.6		--	0.50	

NUTRIENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

DATE	SAMP	G.H.	TEMP	F SC	TURB	FIELD P ALK	D NO2 +	D NO2	D ORG N	D NH3	T NH3 +	DIS	D O-PO4	D TOT P	
TIME	LAB	Q.	DEPTH	F PH	F CO2	T ALK	NO3	D NO3	T ORG N	T NH3	ORG N	A.H.PO4	T O-PO4	T TOT P	REM
		A1 .1680.00		PIT R NR CANBY						A23D4					
05/11/55	5050	3.10	15.0C				--	--	--	--		--	0.08	--	
0800	5000			7.5				--	--	--	--		--	--	
05/09/56	5050	4.05	12.2C				--	--	--	--		--	0.00	--	
1140	5000			7.0				--	--	--	--		--	--	
09/19/56	5050	2.78	15.6C				--	--	--	--		--	0.11	--	
1115	5000			7.0				--	--	--	--		--	--	
05/08/57	5050	3.80	14.4C				--	--	--	--		--	0.08	--	
1230	5000			7.5				--	--	--	--		--	--	
09/18/57	5050	2.65	15.0C				--	--	--	--		--	0.13	--	
1030	5000			7.8				--	--	--	--		--	--	
05/14/58	5050	4.39	15.0C				--	--	--	--		--	0.16	--	
1125	5000			7.7				--	--	--	--		--	--	
09/10/58	5050	2.83	17.8C				--	--	--	--		--	0.16	--	
1055	5000			7.5				--	--	--	--		--	--	
05/07/59	5050	2.70	14.4C				--	--	--	--		--	0.13	--	
1035	5000			7.8				--	--	--	--		--	--	
09/09/59	5050	2.11	20.0C				--	--	--	--		--	0.20	--	
1700	5000			7.9				--	--	--	--		--	--	
05/11/60	5050	3.06	18.3C				--	--	--	--		--	0.11	--	
1055	5000			7.7				--	--	--	--		--	--	
09/08/60	5050	2.35	18.3C				--	--	--	--		--	0.13	--	
1150	5000	19		7.9				--	--	--	--		--	--	
05/11/61	5050	2.83	10.0C				--	--	--	--		--	0.15	--	
0845	5000	142		7.9				--	--	--	--		--	--	
09/13/61	5050	2.39	20.6C				--	--	--	--		--	0.16	--	
1315	5000	24		8.1				--	--	--	--		--	--	
05/02/62	5050	2.90	18.3C				--	--	--	--		--	0.11	--	
1315	5000	170		7.9				--	--	--	--		--	--	
09/17/62	5050	2.32	21.7C				--	--	--	--		--	0.18	--	
1430	5000	16		8.1				--	--	--	--		--	--	
05/13/63	5050	5.07	11.1C				--	--	--	--		--	0.11	--	
1215	5000	1350		7.4				--	--	--	--		--	--	

NUTRIENT ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY A23D4 CONTINUED

							CONSTITUENTS IN MILLIGRAMS PER LITER								
DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
09/12/63	5050	2.63	16.1C				--	--	--	--		--	0.23	--	
1200	5000	75		7.8				--	--	--	--		--	--	
05/06/64	5050	3.63	7.2C				--	--	--	--		--	0.10	--	
0955	5000	324		7.9				--	--	--	--		--	--	
09/03/64	5050	2.92	12.8C				--	--	--	--		--	0.28	--	
0740	5000	165		7.6				--	--	--	--		--	--	
05/05/65	5050	4.22	9.4C				--	--	--	--		--	0.07	--	
1145	5000	792		7.7				--	--	--	--		--	--	
09/16/65	5050	3.08	14.4C				--	--	--	--		--	0.17	--	
0900	5000	222		8.1				--	--	--	--		--	--	
05/04/66	5050	2.25	17.2C				--	--	--	--		--	0.03	--	
1310	5000	12		9.0				--	--	--	--		--	--	
09/08/66	5050	2.20	15.6C				--	--	--	--		--	0.19	--	
0740	5000	7		8.1				--	--	--	--		--	--	
05/01/67	5050	3.77	7.8C				--	--	--	--		--	0.07	--	
1030	5000	553		7.7				--	--	--	--		--	--	
05/16/72	5050	3.11	15.0C	193			--	--	--	--		--	0.10	--	
0745	5050	294		7.7				0.12	--	--	0.6		--	0.21	
03/14/73	5050		4.0C				--	--	--	--		--	0.07	--	
1305	5050			7.5				0.11	--	--	0.6		--	0.14	
05/08/74	5050	3.68	18.5C				--	--	--	--		--	0.06	--	
1335	5050			7.6				0.19	--	--	0.6		--	0.12	
03/19/75	5050	3.52	7.0C	182	40AF		--	--	--	--		--	0.06	--	
1320	5050			7.7				0.13	--	--	0.7		--	0.14	
05/06/75	5050	4.31	9.0C		26A		--	--	--	--		--	0.04	--	
1400	5050			7.6				0.13	--	--	0.4		--	0.10	
05/12/76	5050	3.27	19.5C	184	23AF		--	--	--	--		--	0.10	--	
1300	5050			7.8				0.12	--	--	0.8		--	0.11	
07/14/77	5050		67.0F	300			--	--	--	--		--	0.15	--	
0945	5050	15 F		7.7				0.04	0.7	0.07	0.77		--	0.22	
08/25/77	5050		61.0F	289			--	--	--	--		--	0.08	--	
0150	5050			7.9				0.04	--	--	1.1		--	0.14	

NUTRIENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
A1 1680.00 PIT R NR CANBY									A23D4 CONTINUED						
10/04/77	5050		60.0F				--	--	--	--		--	0.06	--	
1600	5050			8.4				0.02	0.6	0.03	0.63		--	0.22	
05/22/78	5050		63.0F	183			--	--	--	--		--	--	--	
1430	5050			7.6				--	--	--	0.6		--	0.13	
06/28/78	5050		18.3C	295			--	--	--	--		--	0.06	--	
1000	5050			8.2				0.06	--	--	0.9		--	0.16	
08/02/78	5050		23.3C	228			--	--	--	--		--	0.09	--	
1035	5050			8.4				0.02	--	--	0.9		--	0.17	
05/16/79	5050		64.0F	190			0.10	--	--	0.02		--	0.08	--	
1000	5050	200 E		7.5				--	--	--	0.9		--	0.16	
06/26/79	5050		22.5C	265			0.02	--	--	0.10		--	0.11	--	
0935	5050			8.3				--	--	--	1.3		--	0.18	
08/16/79	5050		19.5C	260			0.00	--	--	0.03		--	0.10	--	
1200	5050			8.6				--	--	--	0.9		--	0.18	
10/23/79	5050		8.5C	350			0.12	--	--	0.09		--	0.12	--	
0630	5050	80 E		8.1				--	--	--	1.0		--	0.20	
01/17/80	5050	7.90	4.5C	160			0.31	--	--	0.11		--	0.12	--	
1210	5050	3500 E		7.2				--	--	--	1.3		--	0.36	
A1 1751.00 PIT R A COU RD 70									A23E1						
07/14/77	5050		68.5F				--	--	--	--		--	0.15	--	
0900	5050	30 E						0.04	0.7	0.10	0.8		--	0.41	
08/25/77	5050		65.0F	265			--	--	--	--		--	0.11	--	
0110	5050			7.3				0.04	--	--	0.8		--	0.14	
05/22/78	5050		63.0F	170			--	--	--	--		--	--	--	
1500	5050			7.7				--	--	--	0.7		--	0.13	
06/28/78	5050		17.8C	271			--	--	--	--		--	0.12	--	
0935	5050			7.6				0.06	--	--	1.0		--	0.22	
08/02/78	5050		25.0C	207			--	--	--	--		--	0.13	--	
0945	5050			7.6				0.04	--	--	1.0		--	0.23	
05/16/79	5050		16.5C	175			0.08	--	--	0.01		--	0.06	--	
0500	5050	180 E		7.5				--	--	--	0.7		--	0.12	
06/26/79	5050		22.0C	250			0.08	--	--	0.10		--	0.08	--	
0905	5050	30 E		7.7				--	--	--	1.4		--	0.23	

NUTRIENT ANALYSES OF SURFACE WATER

DATE TIME	SAMP LAB	G.H. Q.	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	CONSTITUENTS IN MILLIGRAMS PER LITER D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO_4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
		A1 1751.00		PIT R A COU RD 70						A23E1 CONTINUED					
08/16/79 1130	5050 5050	 25 E	17.9C	220 7.6			0.14	-- --	-- --	0.04 --	1.4	--	0.08 --	-- 0.18	
10/23/79 0740	5050 5050	 65 E	6.5C	320 7.7			0.17	-- --	-- --	0.09 --	0.9	--	0.04 --	-- 0.10	
01/17/80 1250	5050 5050		4.5C	160 7.3			0.27	-- --	-- --	0.12 --	1.1	--	0.11 --	-- 0.26	
		A1 2020.00		PIT R NF A CENTERVILLE RD						A23E2					
07/14/77 0815	5050 5050	 3 E	64.0F	525 7.3			--	-- 0.02	-- 0.6	-- 0.10	0.7	--	0.06 --	-- 0.34	
08/25/77 0600	5050 5050			485			--	-- 0.05	-- --	-- --	0.80	--	0.02 --	-- 0.17	
05/22/78	5050 5050		62.0F	150 7.6			--	-- --	-- --	-- --	0.4	--	-- --	-- 0.08	
06/28/78 0900	5050 5050		18.0C	303 7.8			--	-- 0.03	-- --	-- --	0.6	--	0.08 --	-- 0.17	
08/02/78 0905	5050 5050		24.4C	391 8.2			--	-- 0.01	-- --	-- --	0.8	--	0.04 --	-- 0.13	
05/16/79 0815	5050 5050	 80 E	53.0F	130 7.3			0.12	-- --	-- --	0.03 --	0.5	--	0.02 --	-- 0.15	
06/26/79 0800	5050 5050	 3 E	18.0C	380 7.7			0.02	-- --	-- --	0.02 --	0.8	--	0.12 --	-- 0.24	
08/16/79 1015	5050 5050		12.9C	550 8.0			0.03	-- --	-- --	0.03 --	1.4	--	0.03 --	-- 0.17	
10/23/79 0700	5050 5050	 15 E	7.5C	350 7.8			0.26	-- --	-- --	0.03 --	0.3	--	0.05 --	-- 0.08	
01/17/80 1330	5050 5050		3.0C	110 7.3			0.25	-- --	-- --	0.03 --	0.9	--	0.08 --	-- 0.35	

NUTRIENT ANALYSES OF SURFACE WATER

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
										CONSTITUENTS IN MILLIGRAMS PER LITER					
A1 2280.00 PIT R NF AB QUARANTINE STA A23E2															
10/04/77 1300	5050 5050		56.0F	 8.0			--	-- 0.01	-- 0.3	-- 0.03	0.33	--	0.01 --	-- 0.06	
A1 4010.00 PIT R SF A ALTURAS A23E2															
07/14/77 0830	5050 5050	 25 F	65.0F	255 7.5			--	-- 0.09	-- 0.8	-- 0.18	0.98	--	0.08 --	-- 0.24	
08/25/77 0045	5050 5050		60.0F	320 7.3			--	-- 0.06	-- --	-- --	1.5	--	0.11 --	-- 0.17	
10/04/77 1400	5050 5050	 5 E	58.0F	 7.4			--	-- 0.05	-- 1.0	-- 0.18	1.18	--	0.05 --	-- 0.20	
05/22/78	5050 5050	 5 E	61.0F	175 7.4			--	-- --	-- --	-- --	0.9	--	-- --	-- 0.11	
06/28/78 0915	5050 5050		17.2C	209 7.3			--	-- 0.03	-- --	-- --	1.0	--	0.08 --	-- 0.14	
08/02/78 0920	5050 5050		22.2C	171 7.2			--	-- 0.03	-- --	-- --	1.0	--	0.13 --	-- 0.23	
05/16/79 0830	5050 5050	 100 E	63.0F	200 7.4			0.07	-- --	-- --	0.03 --	1.0	--	0.07 --	-- 0.14	
06/26/79 0815	5050 5050	 50	19.5C	230 7.5			0.03	-- --	-- --	0.07 --	1.1	--	0.07 --	-- 0.16	
08/16/79 1030	5050 5050		16.4C	240 7.6			0.04	-- --	-- --	0.06 --	1.6	--	0.18 --	-- 0.26	
10/23/79 0710	5050 5050	 50 E	6.7C	275 7.6	12AF	 167	0.05	-- --	-- --	0.02 --	0.7	--	0.05 --	-- 0.13	
01/17/80 1320	5050 5050		5.0C	220 7.3			0.33	-- --	-- --	0.09 --	1.4	--	0.14 --	-- 0.34	
A1 4014.00 PIT R SF A JONES LA A23E2															
01/17/80 1510	5050 5050		5.0C	340 7.3			1.2	-- --	-- --	0.23 --	2.1	--	0.14 --	-- 0.37	

NUTRIENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
		A1	4015.00	WESTSIDE CA A JONES LA						A23E2					
01/17/80	5050		4.7C	140			0.26	--	--	0.08		--	0.10	--	
1500	5050			7.5				--	--	--	1.3		--	0.34	
		A1	4016.00	EASTSIDE CA A JONES LA						A23E2					
01/17/80	5050		4.0C	160			0.21	--	--	0.07		--	0.08	--	
1515	5050	20 F		7.3				--	--	--	1.2		--	0.26	
		A1	4400.00	PIT R SF NR LIKELY						A23E2					
09/10/58	5050	2.41	69.0F				--	--	--	--		--	0.08	--	
1230	5000			7.9				--	--	--	--		--	--	
05/07/59	5050	2.38	13.9C				--	--	--	--		--	0.03	--	
1215	5000			8.1				--	--	--	--		--	--	
09/10/59	5050	2.02	16.7C				--	--	--	--		--	0.18	--	
0700	5000			8.0				--	--	--	--		--	--	
05/11/60	5050	2.68	15.0C				--	--	--	--		--	0.03	--	
1645	5000			7.7				--	--	--	--		--	--	
09/08/60	5050	2.44	19.4C				--	--	--	--		--	0.02	--	
1320	5000	71		8.1				--	--	--	--		--	--	
05/11/61	5050	2.78	8.9C				--	--	--	--		--	0.03	--	
1140	5000	122		8.1				--	--	--	--		--	--	
09/13/61	5050	1.94	21.1C				--	--	--	--		--	0.13	--	
1440	5000	23		8.4				--	--	--	--		--	--	
05/02/62	5050	2.57	16.1C				--	--	--	--		--	0.05	--	
1500	5000	89		8.1				--	--	--	--		--	--	
09/18/62	5050	2.06	20.0C				--	--	--	--		--	0.13	--	
1135	5000	32		8.4				--	--	--	--		--	--	
05/13/63	5050	3.66	11.1C				--	--	--	--		--	0.07	--	
1350	5000	330		7.7				--	--	--	--		--	--	
09/12/63	5050	2.66	18.3C				--	--	--	--		--	0.16	--	
0940	5000	100		8.0				--	--	--	--		--	--	
05/06/64	5050	2.70	3.3C				--	--	--	--		--	0.03	--	
0840	5000	163		7.8				--	--	--	--		--	--	
09/03/64	5050	2.57	15.6C				--	--	--	--		--	0.13	--	
0920	5000	83		8.2				--	--	--	--		--	--	

NUTRIENT ANALYSES OF SURFACE WATER

DATE TIME	SAMP LAB	C.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	CONSTITUENTS IN MILLIGRAMS PER LITER D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
		A1 4400.00		PIT R SF NR LIKELY						A23E2 CONTINUED					
05/05/65 1305	5050 5000	4.02 410 E	8.3C	 7.6			--	-- --	-- --	-- --	 --	--	0.05 --	-- --	
09/16/65 1000	5950 5000	2.49 72	15.0C	 8.1			--	-- --	-- --	-- --	 --	--	0.08 --	-- --	
05/04/66 1515	5050 5000	2.84 120	15.6C	 8.1			--	-- --	-- --	-- --	 --	--	0.10 --	-- --	
09/07/66 1405	5050 5000	1.76 12	22.8C	 8.4			--	-- --	-- --	-- --	 --	--	0.10 --	-- --	
05/01/67 1155	5050 5000	1.76 13	14.2C	 8.4			--	-- --	-- --	-- --	 --	--	0.06 --	-- --	
06/08/77 0745	5050 5050	2.89	15.0C	 8.0			--	-- 0.05	-- 0.4	-- 0.02	 0.42	--	0.01 --	-- 0.11	
10/05/77 0700	5050 5050	1.93	7.0C	 7.5			--	-- 0.14	-- 0.3	-- 0.04	 0.34	--	0.03 --	-- 0.07	
06/14/78 0830	5050 5050	2.86 129	11.0C	 7.6			--	-- 0.04	-- 0.6	-- 0.01	 0.61	--	0.00 --	-- 0.05	
10/12/78 0730	5050 5050	2.02	7.0C	 7.8			--	-- 0.00	-- 0.5	-- 0.03	 0.53	--	0.02 --	-- 0.04	
05/02/79 1400	5050 5050	2.99	14.0C	 7.3			0.01	-- --	-- --	0.00 --	 0.5	--	0.00 --	-- 0.07	
09/12/79 1135	5050 5050	2.39	20.0C	 8.7			0.01	-- --	-- --	0.01 --	 0.8	--	0.06 --	-- 0.11	
05/07/80 1435	5050 5050	3.56	14.0C	 7.7			0.07	-- --	-- --	0.01 --	 0.5	--	0.06 --	-- 0.14	
09/03/80 1630	5050 5050	3.02	20.5C	 8.2			0.01	-- --	-- --	0.03 --	 0.4	--	0.04 --	-- 0.07	
		A1 4510.00		PIT R SF A LIKELY						A23E2					
01/17/80 1430	5050 5050	 25 E	5.2C	155 7.4			0.18	-- --	-- --	0.04 --	 0.6	--	0.05 --	-- 0.11	

NUTRIENT ANALYSES OF SURFACE WATER

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
	A1	5000.00		BURNEY C A MO						A23B1					
09/07/77 1100	5050 5050	30 E	10 C	123 7.7			--	-- 0.13	-- 0.1	-- 0.09	0.19	--	0.01 --	-- 0.10	
09/21/77 0930	5050 5050	40 E	48 F	135 7.5			--	-- 0.14	-- 0.0	-- 0.06	0.06	--	0.02 --	-- 0.05	
11/29/77 1315	5050 5050		8.9C 0	121 7.5			--	-- 0.14	-- 0.0	-- 0.00	0.0	--	0.03 --	-- 0.03	
02/01/78 0935	5050 5050		7.0C 0	100 7.1			--	-- 0.10	-- 0.1	-- 0.00	0.1	--	0.03 --	-- 0.03	
05/09/78 1440	5050 5050	550 E	12.0C 0	89 7.6			--	-- 0.10	-- 0.1	-- 0.01	0.11	--	0.02 --	-- 0.02	
08/23/78 1100	5050 5050	75 E	10.0C	125 7.8			--	-- 0.15	-- 0.1	-- 0.01	0.11	--	0.03 --	-- 0.03	
09/21/78 0830	5050 5050		9.0C	145 7.6			--	-- 0.11	-- 0.1	-- 0.00	0.1	--	0.02 --	-- 0.03	
10/24/78 1000	5050 5050	75 E	7.0C	141 7.7			--	-- 0.12	-- 0.1	-- 0.00	0.1	--	0.03 --	-- 0.03	
01/17/79 1310	5050 5050	75 E	7.5C	126 7.7			0.14	-- --	-- --	0.00 --	0.1	--	0.02 --	-- 0.03	
05/24/79 0915	5050 5050	125 E	11.0C	112 7.5			0.12	-- --	-- --	0.01 --	0.00	--	0.01 --	-- 0.03	
06/28/79 1015	5050 5050	175 E	10.0C	124 7.9			0.13	-- --	-- --	0.02 --	0.0	--	0.02 --	-- 0.03	
07/26/79 1000	5050 5050	200 E	9.5C	121 7.6			0.14	-- --	-- --	0.01 --	0.0	--	0.02 --	-- 0.03	
12/05/79 1020	5050 5050	100 E	7.3C	7.6			0.14	-- --	-- --	0.00 --	0.0	--	0.02 --	-- 0.04	
	A1	5100.00		BURNEY C A BURNEY FALLS						A23B1					
08/26/77 0800	5050 5050		50.0F	121 7.2			--	-- 0.13	-- --	-- --	0.1	--	0.02 --	-- 0.02	
05/23/78 1300	5050 5050		52.0F	136 7.1			--	-- --	-- --	-- --	0.0	--	-- --	-- 0.03	
06/29/78 1130	5050 5050		10.5C	123 7.2			--	-- 0.14	-- --	-- --	0.2	--	0.02 --	-- 0.03	

NUTRIENT ANALYSES OF SURFACE WATER

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
A1 5100.00				BURNEY C A BURNEY FALLS					A23B1 CONTINUED						
08/03/78 1125	5050 5050		11.0C	115 7.2			--	-- 0.10	-- --	-- --	0.3	--	0.02 --	-- 0.03	
05/16/79 1530	5050 5050	50 E	59.0F	105 7.1			0.08	-- --	-- --	0.00 --	0.2	--	0.02 --	-- 0.03	
06/27/79 1115	5050 5050	25 E	12.0C	150 7.2			0.12	-- --	-- --	0.06 --	0.8	--	0.03 --	-- 0.04	
08/17/79 1045	5050 5050		9.4C	125 7.3			0.08	-- --	-- --	0.04 --	0.3	--	0.03 --	-- 0.03	
01/18/80 1145	5050 5050	600 E	3.0C	55 7.0			0.02	-- --	-- --	0.01 --	0.3	--	0.00 --	-- 0.03	
A1 5150.00				BURNEY C NR BURNEY					A23B3						
05/11/55 1000	5050 5000	200 E	10.0C	7.2			--	-- --	-- --	-- --	--	--	0.02 --	-- --	
05/09/56 0930	5050 5000		7.2C	6.8			--	-- --	-- --	-- --	--	--	0.00 --	-- --	
09/19/56 0915	5050 5000	40 E	12.2C	6.8			--	-- --	-- --	-- --	--	--	0.00 --	-- --	
05/08/57 0940	5050 5000	30 E	11.7C	7.3			--	-- --	-- --	-- --	--	--	0.02 --	-- --	
09/18/57 0815	5050 5000	20 E	12.8C	7.3			--	-- --	-- --	-- --	--	--	0.02 --	-- --	
05/14/58 0845	5050 5000	160 E	8.3C	7.1			--	-- --	-- --	-- --	--	--	0.00 --	-- --	
09/10/58 0840	5050 5000	5.96	11.7C	7.3			--	-- --	-- --	-- --	--	--	0.00 --	-- --	
A1 6000.00				HAT C A MO					A23B1						
09/07/77 1530	5050 5050	100 E	59 F	129 8.1			--	-- 0.04	-- 0.2	-- 0.07	0.27	--	0.03 --	-- 0.13	
09/21/77 1330	5050 5050	100 E	55 F	142 7.7			--	-- 0.08	-- 0.1	-- 0.04	0.14	--	0.04 --	-- 0.12	
11/29/77 1640	5050 5050	100 E	8.4C 0	134 7.4			--	-- 0.13	-- 0.1	-- 0.01	0.11	--	0.06 --	-- 0.07	

NUTRIENT ANALYSES OF SURFACE WATER

DATE TIME	SAMP LAB	G.H. Q.	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
A1 .6000.00 HAT C A MO									A23B1 CONTINUED						
05/09/78 1025	5050 5050		14.0C 0	107 8.1			--	-- 0.04	-- 0.1	-- 0.00	0.1	--	0.03 --	-- 0.06	
A1 6100.00 HAT C NR CASSEL									A23B4						
08/26/77 0715	5050 5050		58.0F	131 7.8			--	-- 0.08	-- --	-- --	0.2	--	0.05 --	-- 0.05	
05/23/78 1200	5050 5050		55.0F	131 8.0			--	-- --	-- --	-- --	0.1	--	-- --	-- 0.06	
06/29/78 1110	5050 5050		15.5C	126 7.4			--	-- 0.07	-- --	-- --	0.3	--	0.04 --	-- 0.06	
08/03/78 1100	5050 5050		17.8C	132 7.6			--	-- 0.05	-- --	-- --	0.4	--	0.04 --	-- 0.07	
08/23/78 1500	5050 5050	400 E	14.0C	130 8.0			--	-- 0.08	-- 0.2	-- 0.02	0.22	--	0.06 --	-- 0.06	
09/21/78 1200	5050 5050		12.0C	152 7.7			--	-- 0.06	-- 0.3	-- 0.03	0.33	--	0.06 --	-- 0.07	
10/24/78 1400	5050 5050	300 E	11.0C	149 7.5			--	-- 0.08	-- 0.2	-- 0.03	0.23	--	0.06 --	-- 0.07	
01/17/79 1605	5050 5050	450 E	6.5C	141 7.5			0.14	-- --	-- --	0.04 --	0.3	--	0.07 --	-- 0.09	
05/16/79 1500	5050 5050	75 E	62.0F	130 9.1			0.04	-- --	-- --	0.02 --	0.2	--	0.05 --	-- 0.07	
05/24/79 1455	5050 5050	500 E	16.0C	133 9.2			0.04	-- --	-- --	0.02 --	0.2	--	0.04 --	-- 0.08	
06/27/79 1025	5050 5050	25 E	17.5C	140 8.6			0.03	-- --	-- --	0.09 --	0.4	--	0.04 --	-- 0.07	
07/26/79 1545	5050 5050	400 E	16.7C	129 8.1			0.03	-- --	-- --	0.01 --	0.2	--	0.05 --	-- 0.08	
08/17/79 0955	5050 5050		15.2C	135 8.4			0.02	-- --	-- --	0.04 --	0.4	--	0.05 --	-- 0.07	
10/23/79 1025	5050 5050		9.5C	135 7.3			0.26	-- --	-- --	0.03 --	0.3	--	0.04 --	-- 0.07	
12/06/79 1330	5050 5050		7.3C	7.5			0.12	-- --	-- --	0.02 --	0.1	--	0.05 --	-- 0.09	

NUTRIENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

DATE TIME	SAMP LAB	G.H. Q	TEMP DEPTH	F EC F PH	TURB F CO2	FIELD P ALK T ALK	D NO2 + NO3	D NO2 D NO3	D ORG N T ORG N	D NH3 T NH3	T NH3 + ORG N	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
	A1	6140.00		HAT C A HAT PH 2						A23B4					
10/05/77 0800	5050 5050		50.0F	 7.3			--	-- 0.06	-- 0.1	-- 0.03	0.13	--	0.04 --	-- 0.07	
	A1	7100.00		FALL R A FALL R MILLS						A23C1					
08/26/77 0600	5050 5050		65.0F	167 7.9			--	-- 0.09	-- --	-- --	0.4	--	0.04 --	-- 0.06	
05/23/78 1100	5050 5050		62.0F	160 8.3			--	-- --	-- --	-- --	0.6	--	-- --	-- 0.08	
06/29/78 1010	5050 5050		21.0C	155 8.4			--	-- 0.02	-- --	-- --	0.4	--	0.03 --	-- 0.07	
08/03/78 0955	5050 5050		24.0C	160 8.2			--	-- 0.02	-- --	-- --	0.5	--	0.02 --	-- 0.05	
05/16/79 1330	5050 5050	 50 E	72.0F	165 8.3			0.03	-- --	-- --	0.01 --	0.4	--	0.00 --	-- 0.05	
06/27/79 0830	5050 5050	 8 E	20.0C	165 9.2			0.02	-- --	-- --	0.09 --	0.9	--	0.02 --	-- 0.06	
08/17/79 0755	5050 5050		19.4C	170 8.7			0.00	-- --	-- --	0.06 --	0.5	--	0.01 --	-- 0.06	
10/23/79 0925	5050 5050		11.5C	170 7.3			0.04	-- --	-- --	0.06 --	0.9	--	0.03 --	-- 0.14	
01/18/80 1010	5050 5050		5.5C	120 7.1			0.26	-- --	-- --	0.03 --	0.6	--	0.04 --	-- 0.10	

APPENDIX C

MISCELLANEOUS CONSTITUENTS IN SURFACE WATER

MISCELLANEOUS ANALYSES OF SURFACE WATER

DATE TIME	SAMP LAB	TEMP EC	DO G.H.	F-PH L-PH	DISCH MBAS	DEPTH TURB	T+L CHLOR	O+G COLOR	SET S ML/L MG/L	BOD SUS S	COD V SUS S	CYANIDE PHENOLS	TOC DOC	IODIDE T ODOR	BROMIDE SULFITE	T SULF D SULF	CC EXT CA EXT
		A1 L 101.3 140.5			LK BRITTON						A23B1						
09/26/62 1000	5050 5000				 --		-- --	-- 2	-- --	-- 21 5	-- --	-- --	-- --	-- --	-- --	-- --	-- --
		A1 1220.00			PIT R A US 299						A23B1						
09/26/62 [illegible]	5050 5000				 --		-- --	-- 2	-- --	-- 26 5	-- --	-- --	-- --	-- --	-- --	-- --	-- --
07/26/79 1515	5050 5050	25.5C 163			 --		-- --	-- --	-- --	-- --	-- --	-- --	2.3 --	-- --	-- --	-- --	-- --
		A1 1225.00			PIT R AB PIT 1 PH						A23B1						
07/26/79 1430	5050 5050	23.5C 190			20 E --		-- --	-- --	-- --	-- --	-- --	-- --	2.4 --	-- --	-- --	-- --	-- --
		A1 1270.00			PIT R A PITTVILLE						A23C1						
09/27/62 0935	5050 5000				 --		-- --	-- 2	-- --	-- 19 5	-- --	-- --	-- --	-- --	-- --	-- --	-- --
07/24/79 1330	5050 5050	25.5C 235			 --		-- --	-- --	-- --	-- --	-- --	-- --	3.1 --	-- --	-- --	-- --	-- --
		A1 1400.00			PIT R NR BIEBER						A23D1						
05/11/61 0700	5050 5000	10.6C	7.4	7.8	8 0.0 A		-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
		A1 1425.00			PIT R A BIEBER						A23D1						
05/11/61 0700	5050 5000	10.6C	7.4	7.8	8 0.0 A		-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
09/26/62 0940	5050 5000				 --		-- --	-- 80	-- --	-- 100 5	-- --	-- --	-- --	-- --	-- --	-- --	-- --
09/12/63 1330	5050 5000	17.8C	12.3	8.3	18 E 0.0 A		-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
07/26/79 1230	5050 5050	26.5C 265			 --		-- --	-- --	-- --	-- --	-- --	-- --	37.0 --	-- --	-- --	-- --	-- --

MISCELLANEOUS ANALYSES OF SURFACE WATER

A1 1680.00 PIT R NR CANBY A23D4

DATE	SAMP	TEMP	DO	F-PH	DISCH		DEPTH	T+L	O+G	SET S ML/L	BOD	COD	CYANIDE	TOC	IODIDE	BROMIDE	T SULF	CC EXT
TIME	LAB	EC	G.H.	L-PH	MBAS		TURB	CHLOR	COLOR	MG/L	SUS S	V SUS S	PHENOLS	DOC	T ODOR	SULFITE	D SULF	CA EXT
05/11/61	5050	10.0C	8.4	7.9	142			--	--	--	--	--	--	--	--	--	--	--
0845	5000		2.83		0.00	A		--	--	--	--	--	--	--	--	--	--	--
09/13/61	5050	20.6C	9.4	8.1	24			--	--	--	--	--	--	--	--	--	--	--
1315	5000		2.39		0.0	A		--	--	--	--	--	--	--	--	--	--	--
05/02/62	5050	18.3C	8.8	7.9	170			--	--	--	--	--	--	--	--	--	--	--
1315	5000		2.90		0.0	A		--	--	--	--	--	--	--	--	--	--	--
09/17/62	5050	21.7C	9.3	8.1	16			--	--	--	--	--	--	--	--	--	--	--
1430	5000		2.32		0.0	A		--	--	--	--	--	--	--	--	--	--	--
05/13/63	5050	11.1C	9.1	7.4	1350			--	--	--	--	--	--	--	--	--	--	--
1215	5000		5.70		0.0	A		--	--	--	--	--	--	--	--	--	--	--
09/12/63	5050	16.1C	7.9	7.8	75			--	--	--	--	--	--	--	--	--	--	--
1200	5000		2.63		0.0	A		--	--	--	--	--	--	--	--	--	--	--
05/06/64	5050	7.2C	10.0	7.9	324			--	--	--	--	--	--	--	--	--	--	--
0955	5000		3.63		0.1	A		--	--	--	--	--	--	--	--	--	--	--
09/03/64	5050	12.8C	7.7	7.6	165			--	--	--	--	--	--	--	--	--	--	--
0740	5000		2.92		0.4	A		--	--	--	--	--	--	--	--	--	--	--
05/05/65	5050	9.4C	8.5	7.7	792			--	--	--	--	--	--	--	--	--	--	--
1145	5000		4.22		0.0	A		--	--	--	--	--	--	--	--	--	--	--
09/16/65	5050	14.4C	8.1	8.1	222			--	--	--	--	--	--	--	--	--	--	--
0900	5000		3.08		0.0	A		--	--	--	--	--	--	--	--	--	--	--
11/17/65	5050							--	--	--	--	--	--	--	--	--	--	--
1500	5050		2.86		0.0	A		--	--	--	--	--	--	--	--	--	--	--
04/19/66	5050	8.9C	9.7	7.6				--	--	--	--	--	--	--	--	--	--	--
1230	5050				0.0	A		--	--	--	--	--	--	--	--	--	--	--
05/04/66	5050	17.2C	8.8	8.0	12			--	--	--	--	--	--	--	--	--	--	--
1310	5000		2.25		0.0	A		--	--	--	--	--	--	--	--	--	--	--
09/08/66	5050	15.6C	7.6	8.1	7			--	--	--	--	--	--	--	--	--	--	--
0740	5000		2.20		0.0	A		--	--	--	--	--	--	--	--	--	--	--
05/01/67	5050	7.8C	10.2	7.7	553			--	--	--	--	--	--	--	--	--	--	--
1030	5000		3.77		0.0	A		--	--	--	--	--	--	--	--	--	--	--
07/25/79	5050	24.5C						--	--	--	--	--	--	11	--	--	--	--
1145	5050	256			--			--	--	--	--	--	--	--	--	--	--	--

MISCELLANEOUS ANALYSES OF SURFACE WATER

DATE TIME	SAMP LAB	TEMP EC	DO G.H.	F-PH L-PH	DISCH MBAS	DEPTH TURB	T+L CHLOR	O+G COLOR	SET S ML/L MG/L	BOD SUS S	COD V SUS S	CYANIDE PHENOLS	TOC DOC	IODIDE T ODOR	BROMIDE SULFITE	T SULF D SULF	CC EXT CA EXT
		A1 1705.00			KELLY HOT SPR NR CANBY						A23E1						
09/26/62 1100	5050 5000				2 E --		-- --	-- 15	-- --	-- 0.1 5	-- --	-- --	-- --	-- --	-- --	-- --	-- --
		A1 1751.00			PIT R A COU RD 70						A23E1						
07/26/79 1115	5050 5050	23.5C 246			20 E --		-- --	-- --	-- --	-- --	-- --	-- --	11 --	-- --	-- --	-- --	-- --
		A1 1773.00			RATTLESNAKE C A HWY 299						A23E2						
09/27/62 1730	5050 5000				11 E --		-- --	-- 15	-- --	-- 82 5	-- --	-- --	-- --	-- --	-- --	-- --	-- --
		A1 1775.00			PIT R A ALTURAS LUMBER MILL						A23E2						
09/26/62 1120	5050 5000				30 E --		-- --	-- 75	-- --	-- 40 5	-- --	-- --	-- --	-- --	-- --	-- --	-- --
		A1 2351.00			PIT R NF BL JOSEPH C						A23E2						
09/27/62	5050 5000				---		-- --	-- 15	-- --	-- 4 5	-- --	-- --	-- --	-- --	-- --	-- --	-- --
		A1 4001.00			DORRIS RES DIV A HWY 395						A23E2						
09/27/62	5050 5000				---		-- --	-- 40	-- --	-- 26 5	-- --	-- --	-- --	-- --	-- --	-- --	-- --
		A1 4010.00			PIT R SF A ALTURAS						A23E2						
07/26/79 1100	5050 5050	22.5C 204			30 E --		-- --	-- --	-- --	-- --	-- --	-- --	11 --	-- --	-- --	-- --	-- --
		A1 4400.00			PIT R SF NR LIKELY						A23E2						
05/11/61 1140	5050 5000	8.9C	10.4 2.78	8.1	122 0.0 A		-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
09/13/61 1440	5050 5000	21.1C	7.9 1.94	8.4	23 0.0 A		-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
09/12/63 0940	5050 5000	18.3C	8.8 2.66	8.0	100 0.0 A		-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
05/06/64 0840	5050 5000	3.3C	11.9 2.70	7.8	103 0.0 A		-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
09/03/64 0920	5050 5000	15.6C	8.9 2.57	8.2	83 0.2 A		-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --

MISCELLANEOUS ANALYSES OF SURFACE WATER

```
                                                                    SET S
  DATE     SAMP    TEMP   DO     F-PH    DISCH   DEPTH  T.L     O.G   ML/L      BOD         COD     CYANIDE   TOC   IODIDE  BROMIDE  T SULF  CC EXT
  TIME      LAB     EC   G.H.    L-PH     MBAS    TURB CHLOR  COLOR  MG/L      SUS S   V  SUS S   PHENOLS   DOC   T ODOR  SULFITE  D SULF  CA EXT
* * *     * *     * *   * *     * *     * * *    * *   * *    * *    * *    * * * *  * * *     * * *     * *   * * *    * * *    * *    * * *

                 A1  4400.00            PIT R SF NR LIKELY                            A23E2 CONTINUED

05/05/65 5050    8.3C   9.4     7.6     410 E            --     --     --         --          --        --      --     --       --      --      --
  1305   5000           4.02            0.1  A           --     --     --         --          --        --      --     --       --      --      --

09/16/65 5050   59.0F   9.6     8.1      72              --     --     --         --          --        --      --     --       --      --      --
  1000   5000           2.49            0.0  A           --     --     --         --          --        --      --     --       --      --      --

05/04/66 5050   15.6C   8.6     8.1     120              --     --     --         --          --        --      --     --       --      --      --
  1515   5000           2.84            0.0  A           --     --     --         --          --        --      --     --       --      --      --

09/07/66 5050   22.8C   8.0     8.4      12              --     --     --         --          --        --      --     --       --      --      --
  1405   5000           1.76            0.0  A           --     --     --         --          --        --      --     --       --      --      --

05/01/67 5050   14.2C  10.2     8.4      13              --     --     --         --          --        --      --     --       --      --      --
  1155   5000           1.76            0.0  A           --     --     --         --          --        --      --     --       --      --      --

06/08/77 5050   15.0C   9.4     8.0                      --     --     --        1.3 B      10          --     6.7     --       --      --      --
  0745   5050           2.89            0.0  L           --     --     --       25   5      --          --      --     --       --      --      --

10/05/77 5050    7.0C   9.8     7.5                      --     --     --        1.3 B       4          --     3.6     --       --      --      --
  0700   5050           1.93            0.0  L           --     --     --        8   5      --          --      --     --       --      --      --

06/14/78 5050   11.0C   9.4     7.6     129              --     --     --        0.8 B       5          --     3.7     --       --      --      --
  0830   5050           2.86            0.0  L           --     --     --       12   5      --          --      --     --       --      --      --

10/12/78 5050    7.0C  10.0     7.8                      --     --     --         --         4          --     2.6     --       --      --      --
  0730   5050           2.02            0.0              --     --     --        8   5      --          --      --     --       --      --      --

05/02/79 5050   14.0C   9.4     7.3     154              --     --     --        1.0 B       6          --     6.2     --       --      --      --
  1400   5050           2.99            0.0  L           --     --     --       16   5      --          --      --     --       --      --      --

09/12/79 5050   20.0C   8.3     8.7                      --     --     --        1.2 B       6          --     4.6     --       --      --      --
  1135   5050           2.39            0.0  L           --     --     --        8   5      --          --      --     --       --      --      --

05/07/80 5050   14.0C   9.1     7.7                      --     --     --        1.4 B      20          --     3.7     --       --      --      --
  1435   5050           3.56            0.0  L           --     --     --       32   5      --          --      --     --       --      --      --

09/03/80 5050   20.5C   8.1     8.2                      --     --     --        0.9 B      15          --     6.8     --       --      --      --
  1630   5050           3.02            0.0  L           --     --     --        4   5      --          --      --     --       --      --      --

                 A1  4500.00            PIT R SF NR JESS VLY                          A23E3

09/27/62 5050                                            --     --     --         --        --          --      --     --       --      --      --
         5000                            --              --     40     --       14   5      --          --      --     --       --      --      --
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MISCELLANEOUS ANALYSES OF SURFACE WATER

DATE TIME	SAMP LAB	TEMP EC	DO G.H.	F-PH L-PH	DISCH MBAS	DEPTH TURB	T+L CHLOR	O+G COLOR	SET S ML/L MG/L	BOD SUS S		COD V SUS S	CYANIDE PHENOLS	TOC DOC	IODIDE T ODOR	BROMIDE SULFITE	T SULF D SULF	CC EXT CA EXT
		A1	4605.00		WEST VLY C BL W VLY RES							A23E3						
09/27/62	5050						--	--	--	--		--	--	--	--	--	--	--
	5000				--		--	70	--	12	5	--	--	--	--	--	--	--
		A1	6100.00		HAT C NR CASSEL							A23B4						
07/26/79	5050				75 E		--	--	--	--		--	--	1.5	--	--	--	--
1530	5050	130			--		--	--	--	--		--	--	--	--	--	--	--
		A1	7100.00		FALL R A FALL R MILLS							A23C1						
09/21/62	5050	17.8C	6.6				--	--	--	--		--	--	--	--	--	--	--
	5000				--		--	0	--	4	5	--	--	--	--	--	--	--
07/26/79	5050	24.0C					--	--	--	--		--	--	3.1	--	--	--	--
1400	5050	164			--		--	--	--	--		--	--	--	--	--	--	--
		A1	7941.00		MCARTHUR CA A MCARTHUR							A23C1						
09/27/62	5050						--	--	--	--		--	--	--	--	--	--	--
0920	5000				--		--	1	--	6	5	--	--	--	--	--	--	--

APPENDIX D

MINOR ELEMENT ANALYSIS OF SURFACE WATER

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                                          MINOR ELEMENT ANALYSES OF  SURFACE WATER

                                           CONSTITUENTS IN MILLIGRAMS PER LITER
  DATE    SAMP        DISCH   TEMP                  BARIUM       CHROM (ALL)   COPPER       LEAD          MERCURY        SILVER
  TIME     LAB DEPTH   EC      PH        ARSENIC    CADMIUM      CHROM (HEX)   IRON         MANGANESE     SELENIUM       ZINC          REM
* * *   * *  * *   * *  *  * *  * *  * * *  *  * * *  *  * * * *  * * * *  * * * *  * * * * *  * * *  * * * * *

               A1 L 101.3 140.5   LK BRITTON                                    A23B1
08/26/77 5050                66.0F                      --            --         0.00    T    0.00   T      --             --
  0740   5050          156    7.2        --         0.00   T          --         0.12    T    0.05   T      --             0.01    T

               A1  1191.00            CAYTON C A NO                             A23B1

07/26/79 5050          20 E  18.2C                      --            --         --           --            --             --
  1200   5050          214    8.1        --             --            --         2.6     T    0.35   T      --             --

               A1  1192.00            CAYTON C A HWY 89                         A23B1

07/17/79 5050           2 E  19.5C                  0.0     D     0.00    D      0.00    D    0.00   D     0.000   T       --
  0850   5050          340    7.5     0.00   D      0.00    D         --         1.5     T    0.04   D     0.00    D       --

               A1  1194.00            CAYTON C BL SPR                           A23B1

07/26/79 5050          10 E  11.2C                      --            --         --           --            --             --
  0715   5050          199    8.6        --             --            --         1.0     T    0.05   T      --             --

               A1  1220.00            PIT R A US 299                            A23B1

08/26/77 5050                15.5C                      --            --         0.00    T    0.01   T      --             --
  0700   5050          168    8.3        --         0.00   T          --         0.16    T    0.02   T      --             0.01    T

08/03/78 5050                20.5C                      --            --         0.00    T    0.01   T      --             --
  1050   5050          163    8.2        --         0.00   T          --         0.09    T    0.03   T      --             0.01    T

10/23/79 5050                12.0C                      --            --         0.00    T    0.00   T      --             --
  1015   5050          175    7.8        --         0.00   T          --         0.71    T    0.18   T      --             0.00    T

               A1  1225.00            PIT R AB PIT 1 PH                         A23B1

08/26/77 5050                62.0F                      --            --         0.00    T    0.00   T      --             --
  0630   5050          202    8.4        --         0.00   T          --         0.05    T    0.02   T      --             0.01    T

08/03/78 5050                21.0C                      --            --         0.03    T    0.01   T      --             --
  1025   5050          192    8.3        --         0.00   T          --         0.11    T    0.09   T      --             0.02    T

10/23/79 5050                12.5C                      --            --         0.00    T    0.00   T      --             --
  0955   5050          225    8.1        --         0.00   T          --         0.18    T    0.02   T      --             0.00    T

               A1  1231.00            PIT R A DOWNTOWN FALL R MILLS             A23C1

09/26/62 5050                                           --            --         --           --            --             --
  1445   5000                            --             --            --         0.011   D    --            --             --
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                                                MINOR ELEMENT ANALYSES OF  SURFACE WATER

                                                  CONSTITUENTS IN MILLIGRAMS PER LITER
  DATE    SAMP        DISCH    TEMP                 BARIUM     CHROM (ALL)    COPPER        LEAD       MERCURY         SILVER
  TIME     LAB DEPTH    EC      PH       ARSENIC    CADMIUM    CHROM (HEX)     IRON       MANGANESE    SELENIUM         ZINC           REM
*  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *

              A1  1270.00          PIT R A PITTIVILLE                               A23C1

08/26/77 5050                59.0F                   --           --          0.00   T     0.00   T      --            --
 0530    5050           271  7.4        --          0.00   T      --          0.11   T     0.07   T      --            0.01   T

08/03/78 5050                18.9C                   --           --          0.00   T     0.01   T      --            --
 0930    5050           234  7.9        --          0.00   T      --          0.07   T     0.05   T      --            0.01   T

10/23/79 5050                12.0C                   --           --          0.01   T     0.01   T      --            --
 0900    5050           305  8.1        --          0.00   T      --          2.0    T     0.09   T      --            0.01   T

              A1  1400.00          PIT R NR BIEBER                                  A23D1

05/07/59 5050                13.3C                   --         0.00   D      0.00   D     0.00   D      --            --
 0900    5000                7.7      0.00   D       --           --          0.07   D     0.00   D      --            0.00   D

09/09/59 5050                25.0C                   --         0.00   D      0.00   D     0.00   D      --            --
 1445    5000                8.2      0.00   D       --           --          0.05   D     0.00   D      --            0.02   D

05/11/61 5050             8  10.6C                   --         0.00   D      0.00   D     0.00   D      --            --
 0700    5000                7.8      0.00   D       --           --          0.05   D     0.00   D      --            0.01   D

              A1  1420.00          JUNIPER C NR BIEBER                              A23D1

06/25/58 5050             1 E 28.9C                  --         0.00   D      0.00   D     0.00   D      --            --
 1600    5000                         0.00   D       --           --          0.61   D     0.00   D      --            0.00   D

06/25/58 5050             1 E 28.9C                  --           --           --           --            --            --
 1601    5000                           --           --           --          0.76   T      --           --            --

              A1  1425.00          PIT R A BIEBER                                   A23D1

05/07/59 5050                13.3C                   --         0.00   D      0.00   D     0.00   D      --            --
 0900    5000                7.7      0.00   D       --           --          0.07   D     0.00   D      --            0.00   D

09/09/59 5050                25.0C                   --         0.00   D      0.00   D     0.00   D      --            --
 1445    5000                8.2      0.00   D       --           --          0.05   D     0.00   D      --            0.02   D

05/11/60 5050                17.8C                   --         0.00   D      0.00   D     0.00   D      --            --
 0820    5000                7.5      0.00   D       --           --          0.12   D     0.00   D      --            0.00   D

09/08/60 5050                15.6C                   --         0.00   D      0.00   D     0.00   D      --            --
 0930    5000                8.1      0.00   D       --           --          0.03   D     0.00   D      --            0.00   D

05/11/61 5050             8  10.6C                   --         0.00   D      0.00   D     0.00   D      --            --
 0700    5000                7.8      0.00   D       --           --          0.05   D     0.00   D      --            0.01   D

[illegible]/62 5050                                  --           --           --           --            --            --
 2215    5000                           --           --           --          0.273  D      --           --            --
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                                                 MINOR ELEMENT ANALYSES OF  SURFACE WATER

                                                   CONSTITUENTS IN MILLIGRAMS PER LITER
  DATE   SAMP        DISCH   TEMP                    BARIUM     CHROM (ALL)    COPPER        LEAD         MERCURY      SILVER
  TIME    LAB DEPTH    EC     PH        ARSENIC      CADMIUM    CHROM (HEX)     IRON      MANGANESE     SELENIUM       ZINC        REM
*  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *

              A1  1425.00          PIT R A BIEBER                                 A23D1 CONTINUED

09/12/63 5050          18 E  17.8C                    --           --           --           --            --           --
  1330   5000                 8.3       0.01   0      --           --           --           --            --           --

08/02/78 5050                26.1C                    --           --          0.01    T    0.01    T      --           --
  1145   5050           257   9.4        --          0.00   T      --          0.92    T    0.14    T      --          0.02   T

10/23/79 5050          100 E  9.5C                    --           --          0.00    T    0.00    T      --           --
  0740   5050           290   8.1        --          0.00   T      --          2.3     T    0.12    T      --          0.01   T

              A1  1570.00          PIT R NR LOOKOUT                               A23D1

08/25/77 5050                17.0C                    --           --          0.01    T    0.00    T      --           --
  0245   5050           290   7.9        --          0.00   T      --          1.7     T    0.11    T      --          0.02   T

08/02/78 5050                25.0C                    --           --          0.00    T    0.01    T      --           --
  1120   5050           258   8.2        --          0.01   T      --          0.57    T    0.20    T      --          0.03   T

10/23/79 5050           90 E  8.0C                    --           --          0.00    T    0.00    T      --           --
  0715   5050           400   8.3        --          0.00   T      --          2.0     T    0.08    T      --          0.00   T

              A1  1680.00          PIT R NR CANBY                                 A23D4

05/13/52 5050                15.5C                    --          0.00   D     0.00    D    0.00    D      --           --
  1015   5000                 7.7       0.00   D      --           --          0.00    D    0.00    D      --          0.00   D

10/16/52 5050                15.0C                    --           --          0.0     D    0.00    D      --           --
  1245   5000                 8.3       0.00   D      --          0.00   D     0.00    D    0.00    D      --          0.00   D

05/06/53 5050                15.0C                    --          0.     D     0.      D    0.      D      --           --
  0830   5000                 7.6       0.     D      --           --          0.1     D    0.      D      --          0.     D

09/23/53 5050                15.0C                    --           --          0.0     D    0.00    D      --           --
  0830   5000                           0.00   D      --          0.00   D     1.1     T    0.00    D      --          0.02   D

05/06/54 5050           210  61.0F                    --           --          0.0     D    0.00    D      --           --
  0810   5000                 7.8       0.00   D      --          0.00   D     0.17    D    0.00    D      --          0.02   D

09/15/54 5050                15.0C                    --           --          0.0     D    0.00    D      --           --
  1400   5000                 7.6       0.00   D      --          0.00   D     0.03    D    0.00    D      --          0.03   D

05/11/55 5050                15.0C                    --          0.00   D     0.01    D    0.00    D      --           --
  0800   5000                 7.5        --           --           --          0.05    D    0.00    D      --          0.01   D

09/14/55 5050            64  15.6C                    --          0.00   D     0.00    D    0.00    D      --           --
  0850   5000                 7.4       0.00   D      --           --          0.06    D    0.00    D      --          0.00   D

05/09/56 5050                12.2C                    --           --          0.00    D    0.00    D      --           --
  1140   5000                 7.0       0.00   D      --          0.01   D     0.14    D    0.00    D      --          0.00   D
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MINOR ELEMENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

A1 .1680.00 PIT R NR CANBY A23D4 CONTINUED

DATE TIME	SAMP LAB	DEPTH	DISCH EC	TEMP PH	ARSENIC	BARIUM CADMIUM	CHROM (ALL) CHROM (HEX)	COPPER IRON	LEAD MANGANESE	MERCURY SELENIUM	SILVER ZINC	REM
09/19/56	5050			15.6C		--	--	0.02 D	0.00 D	--	--	
1115	5000			7.0	0.00 D	--	0.00 D	0.29 D	0.00 D	--	0.03 D	
05/08/57	5050			14.4C		--	--	0.01 D	0.00 D	--	--	
1230	5000			7.5	0.00 D	--	0.00 D	0.22 D	0.00 D	--	0.00 D	
09/18/57	5050			15.0C		--	--	0.00 D	0.00 D	--	--	
1030	5000			7.8	0.00 D	--	0.00 D	0.02 D	0.00 D	--	0.02 D	
05/14/58	5050			15.0C		--	--	0.00 D	0.00 D	--	--	
1125	5000			7.7	0.00 D	--	0.00 D	0.23 D	0.00 D	--	0.00 D	
09/10/58	5050			17.8C		--	0.00 D	0.06 D	0.00 D	--	--	
1055	5000			7.5	0.00 D	--	--	0.26 D	--	--	0.00 D	
05/07/59	5050			14.4C		--	0.00 D	0.00 D	0.00 D	--	--	
1035	5000			7.8	0.00 D	--	--	0.07 D	0.00 D	--	0.00 D	
09/09/59	5050			20.0C		--	0.00 D	0.02 D	0.00 D	--	--	
1700	5000			7.9	0.00 D	--	--	0.33 D	0.00 D	--	0.00 D	
05/11/60	5050			18.3C		--	0.00 D	0.00 D	0.000 D	--	--	
1055	5000			7.7	0.00 D	--	--	0.17 D	0.00 D	--	0.00 D	
09/08/60	5050		19	18.3C		--	0.00 D	0.00 D	0.00 D	--	--	
1150	5000			7.9	0.00 D	--	--	0.00 D	0.00 D	--	0.01 D	
05/11/61	5050		142	10.0C		--	0.00 D	0.00 D	0.00 D	--	--	
0845	5000			7.9	0.00 D	--	--	0.03 D	0.00 D	--	0.00 D	
09/13/61	5050		24	20.6C		--	--	0.00 D	0.00 D	--	--	
1315	5000			8.1	0.00 D	--	--	0.17 T	0.03 D	--	0.00 D	
05/02/62	5050		170	18.3C		--	0.00 D	0.00 D	0.010 D	--	--	
1315	5000			7.9	0.00 D	0.00 D	--	--	0.00 D	--	0.0 D	
09/17/62	5050		16	21.7C		--	0.00 D	0.00 D	0.00 D	--	--	
1430	5000			8.1	0.01 D	0.00 D	--	0.167 D	0.00 D	--	0.0 D	
09/27/62	5050		25			--	--	--	--	--	--	
0945	5000				--	--	--	0.183 D	--	--	--	
05/13/63	5050		1350	11.1C		--	0.00 D	0.00 D	0.00 D	--	0.00 D	
1215	5000			7.4	0.00 D	0.00 D	--	0.072 D	0.021 D	--	0.00 D	
09/12/63	5050		75	16.1C		--	0.00 D	0.00 D	0.00 D	--	--	
1200	5000			7.8	0.00 D	0.00 D	--	--	0.00 D	--	0.0 D	

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                                     MINOR ELEMENT ANALYSES OF  SURFACE WATER

                                          CONSTITUENTS IN MILLIGRAMS PER LITER
 DATE   SAMP         DISCH   TEMP                     BARIUM      CHROM (ALL)    COPPER        LEAD         MERCURY        SILVER
 TIME    LAB DEPTH    EC      PH        ARSENIC       CADMIUM     CHROM (HEX)     IRON       MANGANESE     SELENIUM         ZINC          REM
* * *  * * * *  * *  *  * *  *  *  * * *  *  * * * *  * * * *  *  * * *  *  * * * *  * * * *  *  * * *  *  * * * *  * *

     .  .  A1  1680.00        PIT R NR CANBY                                   A23D4 CONTINUED

05/06/64 5050          324    7.2C                     --          0.00   D    0.00   D    0.00   D     --              --
 0955    5000                 7.9       0.00   D      0.00   D     --           --         0.00   D     --             0.00   D

09/03/64 5050          165   12.8C                     --          0.00   D    0.00   D    0.00   D     --              --
 0740    5000                 7.6       0.01   D      0.00   D     --          0.137  D    0.00   D     --             0.0    D

05/05/65 5050          792    9.4C                     --          0.00   D    0.00   D    0.00   D     --              --
 1145    5000                 7.7       0.00   D      0.00   D     --          0.320  D    0.00   D     --             0.0    D

09/16/65 5050          222   14.4C                     --          0.00   D    0.00   D    0.00   D     --              --
 0900    5000                 8.1       0.01   D      0.00   D     --          0.017  D    0.00   D     --             0.00   D

05/04/66 5050           12   17.2C                     --          0.00   D    0.021  D    0.00   D     --              --
 1310    5000                 8.0       0.00   D      0.027  D     --           --         0.034  D     --             0.00   D

09/08/66 5050            7   15.6C                     --          0.00   D    0.00   D    0.00   D     --              --
 0740    5000                 8.1       0.01   D      0.00   D     --          0.308  D    0.0005 D     --             0.00   D

05/01/67 5050          553    7.8C                     --          0.0    D    0.043  D    0.00   D     --              --
 1030    5000                 7.7       0.00   D      0.00   D     --          0.051  D    0.031  D     --             0.00   D

09/07/67 5050           56   18.6C                     --          0.00   D    0.00   D    0.00   D     --              --
 0950    5000                 8.1        --           0.00   D     --           --         0.037  D     --             0.00   D

05/07/68 5050          104   13.9C                     --          0.00   D    0.00   D    0.00   D     --              --
 1130    5000                 8.1        --           0.00   D     --          0.189  D    0.177  D     --             0.00   D

09/04/68 5050           29   18.9C                     --          0.00   D    0.00   D    0.00   D     --              --
 1200    5000                 8.2        --           0.00   D     --          0.040  D    0.00   D     --             0.00   D

05/13/69 5050         1020   17.8C                     --          0.00   D    0.00   D    0.00   D     --              --
 1330    5000                 8.4       0.00   D      0.00   D     --          0.206  D    0.00   D     --             0.00   D

09/16/69 5050          116   17.2C                     --          0.00   D    0.00   D    0.00   D     --              --
 1505    5000                 8.1       0.00   D      0.00   D     --          0.034  D    0.00   D     --             0.00   D

05/13/70 5050          792    9.5C                     --          0.00   D    0.00   D    0.00   D     --              --
 1355    5000                 7.7        --           0.00   D     --          0.114  D    0.00   D     --             0.00   D

10/07/70 5050           76    8.3C                     --          0.00   D    0.00   D    0.00   D     --              --
 0815    5000                 8.1        --           0.00   D     --           --         0.00   D     --             0.00   D

05/11/71 5050         1680   15.0C                    0.0    D     --           --         0.00   D    0.0    D        --
 1155    5050                 7.5       0.00   D      0.00   D     --           --          --         0.00   D        --

06/03/71 5050         3660   15.5C                     --          0.00   D    0.00   D    0.00   D     --              --
 1615    5000                 7.2        --           0.00   D     --          0.370  D    0.00   D     --             0.00   D
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                                        MINOR ELEMENT ANALYSES OF  SURFACE WATER

                                        CONSTITUENTS IN MILLIGRAMS PER LITER
 DATE   SAMP          DISCH   TEMP                  BARIUM       CHROM (ALL)    COPPER        LEAD          MERCURY         SILVER
 TIME   LAB DEPTH      EC      PH       ARSENIC     CADMIUM      CHROM (HEX)     IRON       MANGANESE      SELENIUM         ZINC          REM
* * *  * * * *  * * * * *  * * * *  * * * *  * * * * *  * * * *  * * * *  * * * *  * * * *  * * * * *

              A1  1680.00          PIT R NR CANBY                               A23D4 CONTINUED

10/12/71 5050         114    15.5C                  --           0.00   D      0.00   D      0.00   D      --              --
 1530    5050           236   7.9       --          0.00   D     --            0.091  D      0.00   D      --              0.00   D

05/16/72 5050         224    15.0C                  --           --            0.01   T      0.00   T      --              --
 0745    5050           198   7.7       --          0.00   T     --            1.90   T      0.08   T      --              0.01   T

06/16/72 5050         243    21.5C                  --           0.00   D      0.00   D      0.00   D      --              --
 0830    5000           178   7.7       --          0.00   D     --            0.200  D      0.00   D      --              0.074  D

03/14/73 5050                 4.0C                  --           --            0.01   T      0.01   T      --              --
 1305    5050                 7.5       0.00   T    0.00   T     --            4.8    T      0.11   T      --              0.02   T

05/08/74 5050                18.5C                  --           --            0.01   T      0.00   T      --              --
 1235    5050                 7.6       --          0.00   T     --            2.8    T      0.06   T      --              0.01   T

03/19/75 5050                 7.0C                  --           --            0.00   T      0.00   T      --              --
 1320    5050           182   7.7       --          0.00   T     --            4.1    T      0.09   T      --              0.01   T

05/06/75 5050                 9.0C                  --           --            0.01   T      0.00   T      --              --
 1400    5050                 7.6       --          0.00   T     --            3.8    T      0.07   T      --              0.02   T

05/12/76 5050                19.5C                  --           --            0.01   T      0.00   T      --              --
 1300    5050                 7.8       --          0.00   T     --            2.1    T      0.09   T      --              0.00   T

08/25/77 5050                61.0F                  --           --            0.00   T      0.01   T      --              --
 0150    5050           289   7.9       --          0.00   T     --            0.99   T      0.06   T      --              0.01   T

08/02/78 5050                23.3C                  --           --            0.00   T      0.01   T      --              --
 1035    5050           228   8.4       --          0.00   T     --            0.71   T      0.07   T      --              0.02   T

10/23/79 5050          80 E   8.5C                  --           --            0.00   T      0.00   T      --              --
 0620    5050           350   8.1       --          0.00   T     --            1.4    T      0.05   T      --              0.01   T

              A1  1751.00          PIT R A COU RD 79                            A23E1

08/25/77 5050                65.0F                  --           --            0.00   T      0.00   T      --              --
 0110    5050           265   7.3       --          0.00   T     --            1.4    T      0.07   T      --              0.01   T

08/02/78 5050                25.0C                  --           --            0.00   T      0.01   T      --              --
 0945    5050           207   7.6       --          0.00   T     --            1.3    T      0.05   T      --              0.01   T

10/23/79 5050          65 E   6.5C                  --           --            0.00   T      0.01   T      --              --
 0740    5050           320   7.7       --          0.00   T     --            1.1    T      0.03   T      --              0.00   T
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MINOR ELEMENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

DATE TIME	SAMP LAB	DEPTH	DISCH EC	TEMP PH	ARSENIC	BARIUM CADMIUM	CHROM (ALL) CHROM (HEX)	COPPER IRON	LEAD MANGANESE	MERCURY SELENIUM	SILVER ZINC	REM
		A1	1765.00		PIT R BL ALTURAS			A23E2				
09/26/62	5050		20			--	--	--	--	--	--	
0925	5000				--	--	--	0.127 D	--	--	--	
		A1	2020.00		PIT R NF A CENTERVILLE RD			A23E2				
09/27/62	5050		1 E			--	--	--	--	--	--	
1400	5000				--	--	--	0.117 D	--	--	--	
08/25/77	5050					--	--	0.01 T	0.01 T	--	--	
0600	5050		485		--	0.00 T	--	0.50 T	0.59 T	--	0.03 T	
08/02/78	5050			24.4C		--	--	0.01 T	--	--	--	
0905	5050		391	8.2	--	0.00 T	--	0.30 T	0.10 T	--	0.02 T	
10/23/79	5050		15 E	7.5C		--	--	0.00 T	0.00 T	--	--	
0700	5050		35	7.8	--	0.00 T	--	0.04 T	0.00 T	--	0.00 T	
		A1	2202.00		PIT R NF BL PARKER C			A23E2				
05/04/56	5050			45.0F		--	--	--	--	--	--	
0815	5000				--	--	--	0.68 T	--	--	--	
		A1	4010.00		PIT R SF A ALTURAS			A23E2				
09/27/62	5050		32			--	--	--	--	--	--	
1400	5000				--	--	--	0.150 D	--	--	--	
08/25/77	5050			60.0F		--	--	0.00 T	0.00 T	--	--	
0045	5050		320	7.3	--	0.00 T	--	2.0 T	0.09 T	--	0.02 T	
08/02/78	5050			22.2C		--	--	0.00 T	0.01 T	--	--	
0920	5050		171	7.2	--	0.00 T	--	1.6 T	0.06 T	--	0.02 T	
10/23/79	5050		50 E	6.7C		--	--	0.00 T	0.00 T	--	--	
0710	5050		275	7.6	--	0.00 T	--	0.17 T	0.04 T	--	0.00 T	
		A1	4400.00		PIT R SF NR LIKELY			A23E2				
05/03/56	5050		243			--	--	--	--	--	--	
1115	5000				--	--	--	0.6 T	--	--	--	
09/10/58	5050			69.0F		--	0.00 D	0.03 D	0.00 D	--	--	
1230	5000			7.9	0.00 D	--	--	0.29 D	0.00 D	--	0.00 D	
05/07/59	5050			13.9C		--	0.00 D	0.00 D	0.00 D	--	--	
1215	5000			8.1	0.00 D	--	--	0.09 D	0.00 D	--	0.00 D	
09/10/59	5050			16.7C		--	0.00 D	0.00 D	0.00 D	--	--	
0700	5000			8.0	0.00 D	--	--	0.74 D	0.00 D	--	0.00 D	

MINOR ELEMENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

A1 4400.00 PIT R SF NR LIKELY A23E2 CONTINUED

DATE TIME	SAMP LAB	DEPTH	DISCH EC	TEMP PH	ARSENIC	BARIUM CADMIUM	CHROM (ALL) CHROM (HEX)	COPPER IRON	LEAD MANGANESE	MERCURY SELENIUM	SILVER ZINC	REM
12/10/59 0950	5050 5000		10	0 C 7.3	0.00 D	-- --	0.00 D --	0.01 D 0.05 D	0.00 D 0.0 D	-- --	-- 0.03 D	
05/11/60 1645	5050 5000			15.0C 7.7	0.00 D	-- --	0.00 D --	0.00 D 0.07 D	0.00 D 0.00 D	-- --	-- 0.01 D	
09/08/60 1320	5050 5000		71	19.4C 8.1	0.00 D	-- --	0.00 D --	0.00 D 0.06 D	0.00 D 0.00 D	-- --	-- 0.00 D	
05/11/61 1140	5050 5000		122	8.9C 8.1	0.00 D	-- --	0.00 D --	0.00 D 0.06 D	0.00 D 0.00 D	-- --	-- 0.00 D	
09/13/61 1440	5050 5000		23	21.1C 8.4	0.00 D	-- --	-- --	0.00 D 0.33 T	0.00 D 0.21 D	-- --	-- 0.00 D	
09/12/63 0940	5050 5000		100	18.3C 8.0	0.00 D	-- --	-- --	-- --	-- --	-- --	-- --	
05/06/64 0840	5050 5000		103	3.3C 7.8	0.01 D	-- --	-- --	-- --	-- --	-- --	-- --	
09/03/64 0920	5050 5000		83	15.6C 8.2	0.00 D	-- --	-- --	-- --	-- --	-- --	-- --	
05/05/65 1305	5050 5000		410 E	8.3C 7.6	0.00 D	-- --	-- --	-- --	-- --	-- --	-- --	
09/16/65 1000	5050 5000		72	15.0C 8.1	0.00 D	-- --	-- --	-- --	-- --	-- --	-- --	
05/04/66 1515	5050 5000		120	15.6C 8.1	0.00 D	-- --	-- --	-- --	-- --	-- --	-- --	
09/07/66 1405	5050 5000		12	22.8C 8.4	0.00 D	-- --	-- --	-- --	-- --	-- --	-- --	
05/01/67 1155	5050 5000		13	14.2C 8.4	0.00 D	-- --	-- --	-- --	-- --	-- --	-- --	
05/13/69 1530	5050 5050		756	16.1C 8.4	0.00 D	-- --	-- --	-- --	-- --	-- --	-- --	
09/16/69 1650	5050 5050		89	17.2C 7.9	0.00 D	-- --	-- --	-- --	-- --	-- --	-- --	
06/04/71 0840	5050 5050		1020	10.5C 7.4	0.00 D	0.1 D 0.00 D	-- --	-- --	0.00 D --	0.0 D 0.00 D	-- --	

MINOR ELEMENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

DATE TIME	SAMP LAB	DEPTH	DISCH EC	TEMP PH	ARSENIC	BARIUM CADMIUM	CHROM (ALL) CHROM (HEX)	COPPER IRON	LEAD MANGANESE	MERCURY SELENIUM	SILVER ZINC	REM
	A1 4400.00			PIT R SF NR LIKELY				A23E2 CONTINUED				
06/08/77	5050			15.0C		0.0 D	0.00 D	0.01 D	0.00 D	0.0000 T	--	
0745	5050			8.0	0.00 D	0.00 D	--	0.10 D	0.07 D	0.00 D	--	
10/05/77	5050			7.0C		0.0 D	0.00 D	0.00 D	0.00 D	0.0000 T	--	
0700	5050			7.5	0.00 D	0.00 D	--	0.09 D	0.02 D	0.00 D	--	
06/14/78	5050		129	11.0C		0.0 D	0.00 D	0.00 D	0.01 D	0.0002 T	--	
0830	5050			7.6	0.00 D	0.00 D	--	0.12 D	0.01 D	0.00 D	--	
10/12/78	5050			7.0C		0.0 D	0.00 D	0.00 D	0.00 D	0.0001 T	--	
0730	5050			7.8	0.00 D	0.00 D	--	0.08 D	0.01 D	0.01 D	--	
05/02/79	5050			14.0C		0.0 D	0.00 D	0.00 D	0.00 D	0.000 T	--	
1400	5050			7.3	0.00 D	0.00 D	--	0.03 D	0.01 D	0.00 D	--	
09/12/79	5050			20.0C		0.2 D	0.00 D	0.01 D	0.00 D	0.000 T	--	
1135	5050			8.7	0.00 D	0.00 D	--	0.02 D	0.01 D	0.01 D	--	
05/07/80	5050			14.0C		0. D	0.00 D	0.00 D	0.00 D	0.000 T	--	
1435	5050			7.7	0.00 D	0.00 D	--	0.04 D	0.01 D	0.00 D	--	
09/03/80	5050			26.5C		0. D	0.00 D	0.00 D	0.00 D	0.000 T	--	
1630	5050			8.2	0.00 D	0.00 D	--	0.02 D	0.02 D	0.01 D	--	
	A1 4605.00			WEST VLY C BL W VLY RES				A23E3				
12/10/59	5050		1 E	32.0F		--	0.00 D	0.01 D	0.00 D	--	--	
1030	5000			7.9	0.00 D	--	--	0.00 D	0.00 D	--	0.02 D	
	A1 5100.00			BURNEY C A BURNEY FALLS				A23B1				
08/26/77	5050			50.0F		--	--	0.00 T	0.00 T	--	--	
0800	5050		121	7.2	--	0.00 T	--	0.04 T	0.00 T	--	0.00 T	
08/03/78	5050			11.0C		--	--	0.01 T	0.01 T	--	--	
1125	5050		115	7.2	--	0.00 T	--	0.07 T	0.02 T	--	0.01 T	
08/17/79	5050			9.4C		--	--	0.00 T	0.00 T	--	--	
1045	5050		125	7.3	--	0.00 T	--	0.01 T	0.00 T	--	0.01 T	
	A1 5150.00			BURNEY C NR BURNEY				A23B3				
05/13/52	5050			10.0C		--	--	0.00 D	0.00 D	--	--	
1250	5000			7.4	0.00 D	--	0.00 D	0.00 D	0.00 D	--	0.00 D	
10/16/52	5050			8.0C		--	--	0.0 D	0.00 D	--	--	
1015	5000			7.3	0.00 D	--	0.00 D	0.00 D	0.00 D	--	0.00 D	

MINOR ELEMENT ANALYSES OF SURFACE WATER

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                                                  CONSTITUENTS IN MILLIGRAMS PER LITER
 DATE    SAMP          DISCH   TEMP                  BARIUM     CHROM (ALL)    COPPER        LEAD          MERCURY       SILVER
 TIME     LAB DEPTH     EC      PH        ARSENIC    CADMIUM    CHROM (HEX)    IRON          MANGANESE     SELENIUM      ZINC         REM
* * *   * * * * *     * * *   * * *     * * * *   * * * *    * * * * *      * * * *       * * * *       * * * * *     * * * *     * *

           A1 5150.00          BURNEY C NR BURNEY                               A2383 CONTINUED

05/06/53 5050                  49.1F                 --         0.0      D     0.0    D     0.0    D       --            --
  1030   5000                   7.2       0.0    D   --         --             0.0    D     0.0    D       --           0.0     D

09/23/53 5050                  50.0F                 --         --             0.0    D     0.00   D       --            --
  1100   5000                             0.00   D   --         0.00     D     0.45   T     0.00   D       --           0.00    D

05/06/54 5050          60 E    51.0F                 --         --             0.0    D     0.00   D       --            --
  1145   5000                   7.2       0.00   D   --         0.00     D     0.00   D     0.00   D       --           0.02    D

09/15/54 5050          20 E    13.9C                 --         --             0.0    D     0.00   D       --            --
  1515   5000                   7.3       0.00   D   --         0.00     D     0.20   D     0.00   D       --           0.01    D

05/11/55 5050         200 E    10.0C                 --         0.000    D     0.000  D     0.000  D       --            --
  1000   5000                   7.2       --         --         --             0.05   D     0.000  D       --           0.000   D

09/14/55 5050          50 E    12.8C                 --         0.00     D     0.00   D     0.00   D       --            --
  1055   5000                   7.2       0.00   D   --         --             0.13   D     0.00   D       --           0.00    D

05/09/56 5050                   7.2C                 --         --             0.01   D     0.00   D       --            --
  0930   5000                   6.8       0.00   D   --         0.00     D     0.02   D     0.00   D       --           0.02    D

09/19/56 5050          40 E    12.2C                 --         --             0.03   D     0.00   D       --            --
  0915   5000                   6.8       0.00   D   --         0.00     D     0.10   D     0.00   D       --           0.00    D

05/08/57 5050          30 E    11.7C                 --         --             0.01   D     0.00   D       --            --
  0940   5000                   7.3       0.00   D   --         0.00     D     0.11   D     0.00   D       --           0.01    D

09/18/57 5050          20 E    12.8C                 --         --             0.00   D     0.00   D       --            --
  0815   5000                   7.3       0.00   D   --         0.00     D     0.05   D     0.00   D       --           0.00    D

05/14/58 5050         160 E     8.3C                 --         --             0.00   D     0.00   D       --            --
  0845   5000                   7.1       0.00   D   --         0.00     D     0.01   D     0.00   D       --           0.00    D

09/10/58 5050                  11.7C                 --         0.00     D     0.00   D     0.00   D       --            --
  0840   5000                   7.3       0.00   D   --         --             0.10   D     0.00   D       --           0.00    D

           A1 6100.00          HAT C NR CASSEL                                  A2384

08/13/53 5050         325 E    64.8F                 --         --             0.0    D     0.00   D       --            --
  1615   5000                             --         --         --             0.0    T     --             --            --

08/26/77 5050                  58.0F                 --         --             0.00   T     0.01   T       --            --
  0715   5050         131       7.8       --         0.00   T   --             0.05   T     0.00   T       --           0.01    T

08/03/78 5050                  17.8C                 --         --             0.00   T     0.01   T       --            --
  1100   5050         132       7.6       --         0.00   T   --             0.06   T     0.02   T       --           0.01    T

10/23/79 5050                   9.5C                 --         --             0.00   T     0.01   T       --            --
  1025   5050         135       7.3       --         0.00   T   --             0.19   T     0.03   T       --           0.01    T
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MINOR ELEMENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

DATE TIME	SAMP LAB	DEPTH	DISCH EC	TEMP PH	ARSENIC	BARIUM CADMIUM		CHROM (ALL) CHROM (HEX)	COPPER IRON		LEAD MANGANESE		MERCURY SELENIUM	SILVER ZINC		REM
		A1	6450.00		HAT C NR HAT C				A23B4							
07/29/56	5000			46.0F		--		--	--		--		--	--		
0845	5000			7.3	--	--		--	0.01	D	--		--	--		
		A1	6895.00		HAT C WF NR MANZANITA LK				A23B5							
07/28/56	5000			52.0F		--		--	--		--		--	--		
1615	5000				--	--		--	0.06	D	--		--	--		
		A1	7100.00		FALL R A FALL R MILLS				A23C1							
08/26/77	5050			65.0F		--		--	0.00	T	0.00	T	--	--		
0600	5050		167	7.9	--	0.00	T	--	0.20	T	0.10	T	--	0.02	T	
08/03/78	5050			24.0C		--		--	0.00	T	0.01	T	--	--		
0955	5050		160	8.2	--	0.00	T	--	0.15	T	0.03	T	--	0.01	T	
10/23/79	5050			11.5C		--		--	0.00	T	0.01	T	--	--		
0925	5050		170	7.3	--	0.00	T	--	1.1	T	0.14	T	--	0.01	T	
		A1	8255.00		BUTTE C A WALKER SPR				A23D1							
10/20/57	5050			8.3C		--		--	--		--		--	--		
1530	5000				--	--		--	0.05	D	--		--	--		
		A1	8350.00		ASH C A ADIN				A23D1							
05/24/56	5050		240			--		--	--		--		--	--		
1300	5050				--	--		--	0.31	T	--		--	--		

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                                   SUPPLEMENTAL MINOR ELEMENT ANALYSES OF  SURFACE WATER

                                            CONSTITUENTS IN MILLIGRAMS PER LITER
                                             ANTIMONY    BISMUTH     GALLIUM    LITHIUM     NICKEL      TITANIUM
 DATE    SAMP          DISCH   TEMP                                                                                   REM
 TIME     LAB DEPTH     EC      PH    ALUMINUM   BERYLLIUM   COBALT     GERMANIUM  MOLYBDENUM  STRONTIUM   VANADIUM
 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                A1  1231.00       PIT R A DOWNTOWN FALL R MILLS              A23C1
                                                          0.0011 D    --         --         0.0034 D      --
09/26/62 5050                                 --                      --                                  
 1445    5000                      0.060  D   --          --          --         0.0032 D     --        0.0067 D

                A1  1400.00       PIT R NR BIEBER                            A23D1

05/07/59 5050                  13.3C          --          --          --         --           --          --
 0900    5000                   7.7        0.26   D       --          --          --         --           --          --

09/09/59 5050                  25.0C          --          --          --         --           --          --
 1445    5000                   8.2        0.27   D       --          --          --         --           --          --

05/11/61 5050             8    10.6C          --          --          --         --           --          --
 0700    5000                   7.8        0.11   D       --          --          --         --           --          --

                A1  1420.00       JUNIPER C NR BIEBER                        A23D1

06/25/58 5050             1 E  28.9C          --          --          --         --           --          --
 1600    5000                              0.23   D       --          --          --         --           --          --

                A1  1425.00       PIT R A BIEBER                             A23D1

05/07/59 5050                  13.3C          --          --          --         --           --          --
 0900    5000                   7.7        0.26   D       --          --          --         --           --          --

09/09/59 5050                  25.0C          --          --          --         --           --          --
 1445    5000                   8.2        0.27   D       --          --          --         --           --          --

05/11/60 5050                  17.8C          --          --          --         --           --          --
 0820    5000                   7.5        0.04   D       --          --          --         --           --          --

09/08/60 5050                  15.6C          --          --          --         --           --          --
 0930    5000                   8.1        0.40   D       --          --          --         --           --          --

05/11/61 5050             8    10.6C          --          --          --         --           --          --
 0700    5000                   7.8        0.11   D       --          --          --         --           --          --

                                                                                 --         0.0087 D    0.0050 D
09/26/62 5050                                 --          --          --
 2215    5000                              0.300  D       --          --          --         0.0035 D     --        0.0080 D
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SUPPLEMENTAL MINOR ELEMENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

A1 1680.00 PIT R NR CANBY A23D4

DATE TIME	SAMP LAB	DEPTH	DISCH EC	TEMP PH	ALUMINUM		ANTIMONY BERYLLIUM	BISMUTH COBALT	GALLIUM GERMANIUM	LITHIUM MOLYBDENUM	NICKEL STRONTIUM	TITANIUM VANADIUM	RE
05/13/52 1015	5050 5000			15.5C 7.7	0.00	D	-- --	-- --	-- --	-- --	-- --	-- --	
10/16/52 1245	5050 5000			15.0C 8.3	0.0	D	-- --	-- --	-- --	-- --	-- --	-- --	
05/06/53 0830	5050 5000			15.0C 7.6	0.06	D	-- --	-- --	-- --	-- --	-- --	-- --	
09/23/53 0830	5050 5000			15.0C	0.05	D	-- --	-- --	-- --	-- --	-- --	-- --	
05/06/54 0810	5050 5000		210	61.0F 7.8	0.02	D	-- --	-- --	-- --	-- --	-- --	-- --	
09/15/54 1400	5050 5000			15.0C 7.6	0.04	D	-- --	-- --	-- --	-- --	-- --	-- --	
05/11/55 0800	5050 5000			15.0C 7.5	0.20	D	-- --	-- --	-- --	-- --	-- --	-- --	
09/14/55 0850	5050 5000		64	15.6C 7.4	0.01	D	-- --	-- --	-- --	-- --	-- --	-- --	
05/09/56 1140	5050 5000			12.2C 7.0	0.15	D	-- --	-- --	-- --	-- --	-- --	-- --	
09/19/56 1115	5050 5000			15.6C 7.0	0.00	D	-- --	-- --	-- --	-- --	-- --	-- --	
05/08/57 1230	5050 5000			14.4C 7.5	0.91	D	-- --	-- --	-- --	-- --	-- --	-- --	
09/18/57 1030	5050 5000			15.0C 7.8	0.14	D	-- --	-- --	-- --	-- --	-- --	-- --	
05/14/58 1125	5050 5000			15.0C 7.7	0.03	D	-- --	-- --	-- --	-- --	-- --	-- --	
09/10/58 1055	5050 5000			17.8C 7.5	0.59	D	-- --	-- --	-- --	-- --	-- --	-- --	
05/07/59 1035	5050 5000			14.4C 7.8	0.15	D	-- --	-- --	-- --	-- --	-- --	-- --	
09/09/59 1700	5050 5000			20.0C 7.9	0.53	D	-- --	-- --	-- --	-- --	-- --	-- --	

SUPPLEMENTAL MINOR ELEMENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

A1 1680.00 PIT R NR CANBY A2304 CONTINUED

DATE TIME	SAMP LAB	DEPTH	DISCH EC	TEMP PH	ALUMINUM	ANTIMONY BERYLLIUM	BISMUTH COBALT	GALLIUM GERMANIUM	LITHIUM MOLYBDENUM	NICKEL STRONTIUM	TITANIUM VANADIUM	RE
05/11/60	5050			18.3C		--	--	--	--	--	--	
1055	5000			7.7	0.41 D	--	--	--	--	--	--	
09/08/60	5050		19	18.3C		--	--	--	--	--	--	
1150	5000			7.9	0.26 D	--	--	--	--	--	--	
05/11/61	5050		142	10.0C		--	--	--	--	--	--	
0845	5000			7.9	0.22 D	--	--	--	--	--	--	
09/13/61	5050		24	20.6C		--	--	--	--	--	--	
1315	5000			8.1	0.00 D	--	--	--	--	--	--	
05/02/62	5050		170	18.3C		--	0.00 D	0.0 D	--	0.0014 D	0.0098 D	
1315	5000			7.9	0.255 D	0.00 D	0.00 D	0.00 D	0.00 D	--	0.015 D	
09/17/62	5050		16	21.7C		--	0.000 D	0.0 D	--	0.0035 D	0.0041 D	
1430	5000			8.1	0.113 D	0.00 D	0.00 D	0.000 D	0.0024 D	--	0.0073 D	
09/26/62	5050		30			--	--	--	--	0.0093 D	0.0041 D	
0900	5000				0.133 D	--	--	--	0.0016 D	--	0.0047 D	
05/13/63	5050		1350	11.1C		--	0.00 D	0.00 D	--	0.0045 D	0.037 D	
1215	5000			7.4	1.130 D	0.00 D	0.00 D	0.00 D	0.00 D	--	0.018 D	
09/12/63	5050		75	16.1C		--	0.000 D	0.0 D	--	0.0038 D	0.046 D	
1200	5000			7.8	1.130 D	0.00 D	0.00 D	0.000 D	0.000 D	--	0.029 D	
05/06/64	5050		324	7.2C		--	0.000 D	0.00 D	--	0.0013 D	0.046 D	
0955	5000			7.9	2.370 D	0.000 D	0.00 D	0.000 D	0.000 D	--	0.0040 D	
09/03/64	5050		165	12.8C		--	0.000 D	0.0 D	--	0.0032 D	0.065 D	
0740	5000			7.6	1.270 D	0.00 D	0.00 D	0.000 D	0.0039 D	--	0.013 D	
05/05/65	5050		792	9.4C		--	0.000 D	0.0 D	--	0.0016 D	0.045 D	
1145	5000			7.7	0.667 D	0.00 D	0.0063 D	0.000 D	0.000 D	--	0.0087 D	
09/16/65	5050		222	14.4C		--	0.000 D	0.00 D	--	0.0006 D	0.0008 D	
0900	5000			8.1	0.0043 D	0.000 D	0.00 D	0.000 D	0.000 D	--	0.0037 D	
05/04/66	5050		12	17.2C		--	0.000 D	0.00 D	--	0.0025 D	0.022 D	
1310	5000			8.0	0.771 D	0.013 D	0.00 D	0.000 D	0.000 D	--	0.012 D	
09/08/66	5050		7	15.6C		--	0.000 D	0.00 D	--	0.0054 D	0.000 D	
0740	5000			8.1	0.714 D	0.000 D	0.00 D	0.000 D	0.041 D	--	0.011 D	
05/01/67	5050		553	7.8C		--	0.000 D	0.00 D	--	0.0046 D	0.018 D	
1030	5000			7.7	0.400 D	0.010 D	0.00 D	0.000 D	0.000 D	--	0.0011 D	

SUPPLEMENTAL MINOR ELEMENT ANALYSES OF SURFACE WATER

DATE TIME	SAMP LAB	DEPTH	DISCH EC	TEMP PH	ALUMINUM	CONSTITUENTS IN MILLIGRAMS PER LITER ANTIMONY BERYLLIUM	BISMUTH COBALT	GALLIUM GERMANIUM	LITHIUM MOLYBDENUM	NICKEL STRONTIUM	TITANIUM VANADIUM	RE
		A1	1680.00		PIT R NR CANBY			A23D4 CONTINUED				
09/07/67	5050		56	18.6C		--	0.000 D	0.00 D	--	0.0040 D	0.019 D	
0950	5000			8.1	0.486 D	0.000 D	0.00 D	0.000 D	0.000 D	--	0.010 D	
05/07/68	5050		104	13.9C		--	0.000 D	0.00 D	--	0.0037 D	0.000 D	
1130	5000			8.1	0.314 D	0.000 D	0.00 D	0.000 D	0.000 D	--	0.015 D	
09/04/68	5050		29	18.9C		--	0.000 D	0.00 D	--	0.0037 D	0.000 D	
1200	5000			8.2	0.040 D	0.000 D	0.00 D	0.000 D	0.0018 D	--	0.011 D	
05/13/69	5050		1020	17.8C		--	0.000 D	0.00 D	--	0.0017 D	0.0066 D	
1330	5000			8.4	0.286 D	0.000 D	0.00 D	0.000 D	0.000 D	--	0.0057 D	
09/16/69	5050		116	17.2C		--	0.000 D	0.00 D	--	0.0040 D	0.000 D	
1505	5000			8.1	0.183 D	0.000 D	0.00 D	0.000 D	0.000 D	--	0.0074 D	
05/13/70	5050		792	9.5C		--	0.000 D	0.00 D	--	0.0046 D	0.000 D	
1355	5000			7.7	0.286 D	0.000 D	0.00 D	0.000 D	0.000 D	--	0.0054 D	
10/07/70	5050		76	8.3C		--	0.000 D	0.00 D	--	0.0046 D	0.0069 D	
0815	5000			8.1	0.480 D	0.000 D	0.00 D	0.000 D	0.000 D	--	0.011 D	
06/03/71	5050		3660	15.5C		--	0.000 D	0.00 D	--	0.0028 D	0.074 D	
1615	5000			7.2	--	0.000 D	0.00 D	0.000 D	0.000 D	--	0.014 D	
10/12/71	5050		114	15.5C		--	0.000 D	0.00 D	--	0.0020 D	0.0091 D	
1530	5000		236	7.9	0.130 D	0.000 D	0.00 D	0.000 D	0.000 D	--	0.018 D	
06/16/72	5050		243	21.5C		--	0.000 D	0.00 D	--	0.000 D	0.014 D	
0830	5000		178	7.7	0.110 D	0.000 D	0.00 D	0.000 D	0.000 D	--	0.014 D	
		A1	1765.00		PIT R BL ALTURAS			A23E2				
09/26/62	5050		20			--	--	--	--	0.0035 D	0.0035 D	
0925	5000				0.133 D	--	--	--	0.0019 D	--	0.0073 D	
		A1	2020.00		PIT R NF A CENTERVILLE RD			A23E2				
09/27/62	5050		1 E			--	--	--	--	0.0044 D	0.0036 D	
1400	5000				0.107 D	--	0.0037 D	--	0.0011 D	--	0.012 D	
		A1	4010.00		PIT R SF A ALTURAS			A23E2				
09/27/62	5050		32			--	--	--	--	0.0034 D	0.0038 D	
	5000				0.160 D	--	--	--	0.0017 D	--	0.0080 D	

SUPPLEMENTAL MINOR ELEMENT ANALYSES OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

DATE	SAMP		DISCH	TEMP		ANTIMONY	BISMUTH	GALLIUM	LITHIUM	NICKEL	TITANIUM	RE
TIME	LAB	DEPTH	EC	PH	ALUMINUM	BERYLLIUM	COBALT	GERMANIUM	MOLYBDENUM	STRONTIUM	VANADIUM	
		A1 4400.00			PIT R SF NR LIKELY			A23E2				
09/10/58	5050			69.0F		--	--	--	--	--	--	
1230	5000			7.9	0.26 D	--	--	--	--	--	--	
05/07/59	5050			13.9C		--	--	--	--	--	--	
1215	5000			8.1	0.16 D	--	--	--	--	--	--	
09/10/59	5050			16.7C		--	--	--	--	--	--	
0700	5000			8.0	0.74 D	--	--	--	--	--	--	
12/10/59	5050		10	0 C		--	--	--	--	--	--	
0950	5000			7.3	0.09 D	--	--	--	--	--	--	
05/11/60	5050			15.0C		--	--	--	--	--	--	
1645	5000			7.7	0.20 D	--	--	--	--	--	--	
09/08/60	5050		71	19.4C		--	--	--	--	--	--	
1320	5000			8.1	0.28 D	--	--	--	--	--	--	
05/11/61	5050		122	8.9C		--	--	--	--	--	--	
1140	5000			8.1	0.08 D	--	--	--	--	--	--	
09/13/61	5050		23	21.1C		--	--	--	--	--	--	
1440	5000			8.4	0.05 D	--	--	--	--	--	--	
		A1 4510.00			PIT R SF A LIKELY			A23E2				
09/27/62	5050					--	--	--	--	0.0035 D	0.015 D	
	5000				--	--	--	--	--	--	0.0053 D	
		A1 4605.00			WEST VLY C BL W VLY RES			A23E3				
12/10/59	5050		1 E	32.0F		--	--	--	--	--	--	
1030	5000			7.9	0.07 D	--	--	--	--	--	--	
		A1 5150.00			BURNEY C NR BURNEY			A23B3				
05/13/52	5050			10.0C		--	--	--	--	--	--	
1250	5000			7.4	0.00 D	--	--	--	--	--	--	
10/16/52	5050			8.0C		--	--	--	--	--	--	
1015	5000			7.3	0.0 D	--	--	--	--	--	--	
05/06/53	5050			49.1F		--	--	--	--	--	--	
1030	5000			7.2	0.0 D	--	--	--	--	--	--	
09/23/53	5050			50.0F		--	--	--	--	--	--	
1100	5000				0.08 D	--	--	--	--	--	--	

SUPPLEMENTAL MINOR ELEMENT ANALYSES OF SURFACE WATER

A1 5150.00 BURNEY C NR BURNEY A2383 CONTINUED

DATE	SAMP		DISCH	TEMP			CONSTITUENTS IN MILLIGRAMS PER LITER ANTIMONY	BISMUTH	GALLIUM	LITHIUM	NICKEL	TITANIUM	
TIME	LAB	DEPTH	EC	PH	ALUMINUM		BERYLLIUM	COBALT	GERMANIUM	MOLYBDENUM	STRONTIUM	VANADIUM	RE
05/06/54	5050		60 E	10.6C			--	--	--	--	--	--	
1145	5000			7.2	0.00	D	--	--	--	--	--	--	
09/15/54	5050		20 E	13.9C			--	--	--	--	--	--	
1615	5000			7.3	0.00	D	--	--	--	--	--	--	
05/11/55	5050		200 E	10.0C			--	--	--	--	--	--	
1000	5000			7.2	0.1	D	--	--	--	--	--	--	
09/14/55	5050		50 E	12.8C			--	--	--	--	--	--	
1055	5000			7.2	0.01	D	--	--	--	--	--	--	
05/09/56	5050			7.2C			--	--	--	--	--	--	
0930	5000			6.8	0.00	D	--	--	--	--	--	--	
09/19/56	5050		40 E	12.2C			--	--	--	--	--	--	
0915	5000			6.8	0.00	D	--	--	--	--	--	--	
05/08/57	5050		30 E	11.7C			--	--	--	--	--	--	
0940	5000			7.3	0.29	D	--	--	--	--	--	--	
09/18/57	5050		20 E	12.8C			--	--	--	--	--	--	
0815	5000			7.3	0.00	D	--	--	--	--	--	--	
05/14/58	5050		160 E	8.3C			--	--	--	--	--	--	
0949	5000			7.1	0.00	D	--	--	--	--	--	--	
09/10/58	5050			11.7C			--	--	--	--	--	--	
0840	5000			7.3	0.00	D	--	--	--	--	--	--	

APPENDIX E

PESTICIDES IN SURFACE WATER

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                                                            PESTICIDE ANALYSES OF  SURFACE WATER
                                                     COMPOUNDS REPORTED IN MILLIGRAMS PER LITER
 DATE    SAMP   TEMP DO    G.H. ELP        CHLORINATED HYDROCARBON                     ORGANIC PHOSPHORUS                            OTHER          REM
 TIME     LAB     EC   PH  DISCHARGE  ----------------  ----------------  ----------------  ----------------  ----------------

                Al  1415.00          PIT R NR PUMPKIN CENTER                       A23D1
07/14/77 5050  74.0F  6.9                NONE  DETECTED                     .00001  UNKNOWN                             .00008  24D
 1130    5050    425  7.7         3 E

                Al  1680.00          PIT R NR CANBY                                A23D4

03/14/73 5050   4.0C  9.3  3.41          NONE  DETECTED                      NONE  DETECTED
 1305    5050         7.5   365

05/08/74 5050  10.5C  8.8  3.68       .00006  UNKNOWNS                       NONE  DETECTED
 1335    5050         7.6   485

05/06/75 5050   9.0C 10.3  4.31          NONE  DETECTED                      NONE  DETECTED
 1400    5050         7.6   836

05/12/76 5050  19.5C  8.2  3.27          NONE  DETECTED                      NONE  DETECTED
 1200    5050    184  7.8   285

07/14/77 5050  19.4C  5.6                NONE  DETECTED                      NONE  DETECTED                             NONE  DETECTED H
 0900    5050    335  7.7        15 E

                Al  4400.00          PIT R SF NR LIKELY                            A23E2

06/08/77 5050  15.0C  9.4  2.85          NONE  DETECTED                      NONE  DETECTED
 0745    5050         8.0   133

06/14/78 5050  11.0C  9.4  2.86          NONE  DETECTED                      NONE  DETECTED
 0830    5050         7.6   129

09/12/79 5050  20.0C  8.3  2.39          NONE  DETECTED                      NONE  DETECTED
 1135    5050         8.7    61

09/03/80 5050  20.5C  8.1  3.02          NONE  DETECTED                      NONE  DETECTED
 1630    5050         8.2   158
```

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   J02-P848 JOB ACCOUNTING FOR 11730952
O/S ED=4T   PSL ED=P3  06/19/81
TIME   10/22/27 TO 10/23/53 ELAPSED
  COMP=00/00/04.404
  TASK=00/00/00.735
  EXEC=00/00/03.669
  CHAN=00/00/01.732
FACILITIES REQUESTED / USED
  CORE       008          008
  SCR        000          000
  OUT        8388500      185
  PUN        1            2
  INP                     6
```

APPENDIX F

BENTHIC MACROINVERTEBRATE BIOMONITORING OF THE PIT RIVER

APPENDIX F

BENTHIC MACROINVERTEBRATE BIOMONITORING OF THE PIT RIVER

Introduction

Benthic macroinvertebrate organisms are excellent indicators of the quality of water. Unlike fish, which are highly mobile and able to escape deleterious conditions or repopulate quickly through immigration, benthic macroinvertebrates are more or less permanent residents in a given stream reach subject to daily perturbations and impacts brought about by the water quality conditions of the stream. Encoded in the benthic biological community of an area of a stream is the history of water quality conditions. Diverse and abundant numbers of organisms typify unimpaired rich stream ecosystems. Impaired ecosystems range from less dense, though still diverse, populations to large numbers of a single or a few species to none at all, depending on the nature and severity of degradation. Examination of the biological community complex provides valuable information concerning the interplay of the physical and chemical qualities of a stream.

Stream benthic macroinvertebrate data can be analyzed both subjectively and objectively. Subjective analysis considers the association of organisms to their environment. Ecological relationships are multifaceted, being influenced by a wide range of physical and chemical parameters. As important as these interrelationships are in determining benthic community structure, relatively little empirical analysis is available and the expertise of an experienced aquatic ecologist is essential for subjective analysis. Organism trophic functioning is an area of ecological analysis that is affected by the physical and chemical characteristics of a stream, and provides valuable insight into their impacts on the lotic ecosystem. Four functional groups are recognized for aquatic macroinvertebrates: scrapers, shredders, collectors, and predators. All are essential for the efficient energy processing in streams, and each one predominates in different maturation states from the headwaters to the mouth. Scrapers dominate in reaches of streams where autochthonous food production is greater than that from allochthonous sources. These organisms rely for food primarily on periphyton production on the substrate that forms their habitat. Shredders dominate in reaches of streams that receive allochthonous inputs of large organic materials such as twigs, branches, and leaves. Collectors usually dominate streams below the headwaters where fine organic materials become available due to upstream production from the grinding action of streams or the activities of shredders that turn large particles into smaller particles. Predators occur in every reach of stream where other organisms are available for prey. The number of prey species available generally determines the number of predatory species that can be supported. Unusual lotic conditions cause alterations in the typical functional patterns that can be expected in any particular reach of stream.

Objective analysis of stream macroinvertebrate data commonly employs diversity indices, of which the Shannon-Weaver formula (Weber 1973) has generally met with the widest acceptance. This index incorporates the community parameters of species richness and distribution of organisms among the species. The latter parameter is described alone in the often used equitability index. Ideal unimpaired aquatic communities have maximum diversity and equitability values of 4.0 and 1.0, respectively, though higher equitability values are obtainable in natural communities in which organisms are more evenly distributed than the equitability index computer model. Unimpaired communities have organisms rather uniformly distributed among a rather large number of species, with few species containing large numbers of individuals. Impaired communities have a greater proportion of individuals distributed among fewer species, often with only one or two species containing a disproportionate majority of individuals, resulting in lower diversity and equitability values. Impairment of the biological community can come from many causes, including overstimulation of trophic resources for a select functional group.

Methods

Qualitative benthic macroinvertebrate samples were collected at fourteen riffle sites in the Pit River drainage (Figure 1) using a hand-held kick screen with 0.5 mm mesh. All collected materials were washed through a No. 30 Tyler sieve, with the larger detritus discarded, and the remaining materials preserved in quart jars with a 10 percent formalin solution. Preserved material was later hand sorted in the laboratory, and macroinvertebrates were identified and counted aided by standard taxonomic guides.

The machine formula described by Lloyd, Zar, and Karr (1968) for the Shannon-Weaver diversity index, and the equation and table for calculating equitability given by Weber (1973) were used for data reduction.

Results and Discussion

Benthic macroinvertebrates collected from the Pit River drainage are listed for each station in Appendix G. A numerical summary of these data is presented in Table G-1. A brief discussion of the ecological significance of each species collected is presented in this section, followed by a detailed analysis for each station, based on this information.

Ecological Significance

EPHEMEROPTERA. The mayflies (Ephemeroptera) comprise a moderately large order of insects with over 600 known species in North America. Most of the life span is spent in the aquatic nymphal stage, which varies in duration from nearly a month to two years, depending on the species. Subimagoes (winged but sexually immature adults) are terrestrial and persist for about 24 hours before molting to become sexually mature imagoes. The sole function of the imagoe, which lives from as little as five minutes to as long as a few weeks and does not feed, is in reproduction. Mayflies are generally intolerant of pollution, but many species are able to develop large populations in silty or organically enriched environments due to lack of competition and predation.

Mayfly nymphs are among the most important organisms for the functioning of aquatic ecosystems. Most are collectors or scrapers, collecting particulate organic matter transported by the water or scraping periphyton growth from the substrate. Large populations of mayflies are usually present, which forms the basis of the food web for most aquatic predators.

Twenty-one species of mayflies were found in the Pit River system. Hexagenia limbata californica, the only species of the family Ephemeridae found in California, lives for up to two years in the nymphal stage. This species burrows into the bottom muds of lentic and lotic depositional habitats. Feeding is accomplished by straining organic materials from the water column. Unlike most other mayfly species, H. limbata californica thrives under conditions of overenrichment.

All the Heptageniidae collected from the Pit River system are inhabitants of lotic environments of from moderate to rapid flow. A dorsal-ventrally flattened body and some with gills modified to form a sucking disc enable these organisms to avoid the current by restricting their activities to the low velocity boundary layer. The principal food for these mayflies is particles, including algae and small animals, strained from the flowing water, though periphyton are also scraped from the rocky substrate. The nymphal life span lasts from seven months to nearly a year, depending on the species.

Ameletus was the only member of the Siphlonuridae found in the study area. These nymphs prefer protected areas such as stones, vegetation, and debris of lotic systems. They feed on detritus and diatoms collected from the substrate. Nymphal life lasts for nearly a year.

Isonychia velma, the only member of the Isonychiidae found, prefers fast-flowing riffles, where it takes refuge among large gravels and detritus. Algae are strained from the water for food, but small dipteran larvae and mayfly nymphs may also be taken. Nymphal life lasts up to a year.

Two representative species from the Leptophlebiidae family were found. Both prefer moderate to swift currents, where they take refuge among gravels, detritus, and roots. They feed on algae and detritus. Nymphal development takes up to a year.

Eight species of the genus Ephemerella were found in the study area. Nymphs of this genus occur in a variety of habitats, depending on the species, from swift rapids to nearly stagnant pools. The species collected all prefer detrital and gravel habitats in moderately flowing water. They are all omnivorous, eating algae, detritus, and small animals. Life spans last up to a year.

Caenis, of the family Caenidae, and Tricorythodes, of the family Tricorythidae, both have gills covered (operculate) by the first abdominal gill, which serves to protect succeeding gills from silt. Caenis is usually an inhabitant of quiet or stagnant water and tolerates considerable pollution. Tricorythodes is found in flowing waters and, though tolerant of silty conditions, does not tolerate pollution. Both species are found among sediments ranging in size from silt to gravels and detritus and plant materials. Caenis is omnivorous, feeding on both plant and dead animal materials, while Tricorythodes is herbivorous. Both species require about four months for nymphal development.

Members of the Baetidae family are found almost everywhere that water is present. Baetis, the most common species, occurs in fast-flowing riffles as well as backwater areas and tolerates adverse conditions that would limit the distribution of other mayflies. Nymphal life lasts two to nine months, depending on the species. Pseudocloeon lives in quieter reaches of streams and feeds on algae and detritus. Nymphal life lasts six to nine months for this species.

PLECOPTERA. The stoneflies (Plecoptera) comprise a relatively small order of aquatic insects, with about a hundred species recognized in California. Most stoneflies are associated with clean and cool running water. A few are adapted to conditions in cold oligotrophic lakes, while some others survive in ephemeral streams. Most stoneflies are intolerant of pollution, either inorganic or organic.

As relatively few ecological studies have been conducted with the Plecoptera and a taxonomic revision is being made for the order, only limited ecological interpretation has been made based on Plecoptera nymphs.

The order is divided into two suborders, the predominantly herbivorous Filipalpia and the predominantly carnivorous Setipalpia. Five herbivorous species were collected from the Pit River system. They range in size from among the smallest stoneflies (Nemoura) to the largest (Pteronarcys californica). All the species collected occur in moderately flowing water among gravels, detritus, and plant roots. All usually occur where no evidence of pollution occurs, though some silt is tolerated. The aquatic life span ranges from as little as six months for the small Nemoura to as long as three years for Pteronarcys californica.

Eight carnivorous stoneflies were collected from the study area. Their main foods are mayfly nymphs and dipteran larvae. The four members of the family Perlidae are the largest carnivorous stoneflies in California, and prefer the larger gravels of riffles in fast-flowing cold streams free of siltation and pollution. Nymphs live up to two years before emergence. The Perlodidae are nearly as large as the Perlidae, but live in both moderately or slow-flowing streams. The Chloroperlidae prefer the habitat of riffles. Although both groups feed on smaller macroinvertebrates, Chloroperlidae also feed on organic detritus. Both families tolerate warmer water and more organic enrichment than does the Perlidae. Nymphal development in both families takes up to a year.

ODONATA. The order Odonata includes both the dragonflies (Anisoptera) and the damselflies (Zygoptera). Some species of each suborder are capable of withstanding long periods of dessication. Nymphs and adults of both suborders are predaceous. Nymphs either lie in wait or actively stalk their prey, which consists of the immature forms of most other insects and sometimes fish fry.

Four members of the Gomphidae family were found from the study area. All prefer slower streams or ponds, where they burrow into bottom silts or detritus. Ophiogomphus severus, though, is equally at home in gravel beds of moderately flowing streams. All species collected prey on small animals encountered as they crawl through the bottom materials. Nymphal life span is about two years.

Two members of the Coenagrionidae family were collected. Both genera prefer slow-moving mud-banked streams. The nymphs prefer mats of algae and plant roots. Nymphal life lasts about a year.

Hetaerina was the only member of the Calopterygidae collected. This organism prefers the detrital habitat of slow-moving streams. Nymphal life lasts for about a year.

COLEOPTERA. The beetles (Coleoptera) are the largest order of insects, containing about 5,000 aquatic species. Unlike the previous orders, most aquatic beetle larvae also have an aquatic adult. Feeding habits of aquatic beetles are varied and include scrapers, collectors, shredders, and predators.

Six families of beetles were found during the study. Members of the Psephenidae family are commonly referred to as water-pennies, due to the oval and flattened shape of the brown-colored larvae. Adults are terrestrial. The larvae cling to stones in slow to moderately flowing clear streams, where they feed by scraping periphyton. They are intolerant of pollution, especially silt which makes it difficult for them to cling to rocks and inhibits their food source. Larval life lasts six to twelve months.

The Elmidae are commonly called riffle beetles. All species collected prefer moderately to swiftly flowing streams, except Dubiraphia which prefers quieter reaches of streams or lakes among rocks or submerged vegetation. The other beetles are usually found among bottom gravels. All the species found feed by collecting bits of vegetative detritus, algae, moss, or roots. Little is known about the length of larval life span.

The predaceous water beetles, Dytiscidae, prefer shallow areas of quiet water usually amongst vegetation and detritus. They are fierce predators, feeding on most other aquatic insects. About a year is required to complete the life cycle.

The water scavenger beetles, Hydrophilidae, are herbivorous as adults (though they will ingest some dead animal matter) and carnivorous as larvae, feeding on other insect larvae, including hydrophilids. Members of this family are most often found in marshy areas of standing water or in slow-moving water containing much attached algae and hydrophytes. The life cycle is completed in one year when the overwintering adult lays its eggs in the spring.

Dryopidae prefer moderately to swiftly flowing streams where they inhabit the bottom gravels. Helichus, the only genus collected for this study, feeds on vegetation and roots. Little is known of the life history of members of this family.

The Gyrinidae are commonly known as whirligig beetles due to the whirling activity of adults on the surface of water. Larvae are found in debris and gravels in stream bottoms, where they feed on dipterans, Odonata nymphs, and small fish, into which they inject a poison. Adults of the genus Gyrinis are found on ponds, lakes, puddles, and quiet pools and eddies of streams.

LEPIDOPTERA. Lepidopterans (moths) number more than 100,000 species. Only a fraction of this number if adapted to aquatic life, of which only four are known from California. Parargyractis, collected from the Pit River system, is found in a variety of habitat types, both lentic and lotic, including those receiving organic enrichment. Larvae feed on periphyton, while adults are terrestrial. Larval life lasts less than a year.

TRICHOPTERA. The caddisflies (Trichoptera) comprise one of the largest groups of aquatic insects with more than 1,200 species presently identified. Adults and a few larvae are terrestrial; most larvae are aquatic. Most larvae are found in cool flowing water, but some have become adapted to warmer standing waters. Caddisfly larvae construct various cases, nets, and retreats which serve both to provide shelter and collect food. The type of casemaking activity closely coincides with ecological roles so that the eighteen North American families can be grouped into five categories based on this activity.

The free-living caddisfly larvae, which do not construct any case or net, include only members of the Rhyacophilidae. The genus Rhyacophila is the largest caddisfly genus with over a hundred species from North America. Two species were collected from the Pit River system. The Rhyacophila are generally predaceous, though a few are herbivorous, and live in a wide variety of lotic habitats. Larval life lasts about a year.

The saddle-case makers are included in the family Glossosomatidae. The larvae construct from small rocks portable cases that resemble tortoise shells. Glossosoma contains 25 recognized species in North America. Most species prefer cold, rapid streams, but some have been taken from the shoreline of lakes. Food consists of periphyton or detritus. Larval life lasts from six months to a year, depending on the species.

The Hydroptilidae are the only family containing the purse-case making caddisflies, often referred to as microcaddisflies. Two genera were collected during this study. The genus Hydroptila contains 60 known species. Larvae occur in both flowing and standing waters. They feed on periphyton. Of the three species of Leucotrichia known from North America, L. pictipes is the only one known to occur in California. This species prefers gravel habitat of fast-flowing streams. It feeds on periphyton and detritus. Larval life for hydroptilids ranges from six to twelve months.

The net-spinners found in the study area include the Philopotamidae, Polycentropidae, and Hydropsychidae families. These caddisflies construct fixed retreats attached to rocks or logs, and most use capture nets to strain food particles from the flowing water. Both members of the Philopotamidae collected are restricted to lotic environments. They feed on algae and bits of detritus collected in their nets.

Polycentropus (Polycentropidae) is predaceous, while the two hydropsychids collected are omnivorous, feeding on algae, detritus, and small aquatic invertebrates caught in their nets. Due to these caddisflies' reliance on nets for obtaining food, none can tolerate waters with much of a silt load. Such waters cause clogging and damaging of the nets, requiring a constant expenditure of energy for maintenance. Larval life for members of these families lasts about a year.

The remaining caddisfly genera collected in the study area are the tube-case makers. All construct portable tube-like cases of small rocks or pieces of detritus. Larval life span for most genera lasts about a year. The brachycentrids are found in lotic environments ranging from cold mountain springs to slow-flowing marshy rivers. They are locally abundant where they occur, and can be found among both rocks and vegetation. Food consists of periphyton, detritus, and small insects. The limnephilids are comparatively large caddisflies and are usually dominant at higher latitudes and elevations. They are found in springs, rivers, lakes, marshes, temporary pools, and among organic muck. Food consists of plant materials or the fungi growing on dead plant and animal material. The lepidostomatids are usually found in cool springs and streams, but a few species also occur in lakes. Food consists of plant and animal detritus. The helicopsychids build a snail-like coiled case made of sand grains. Only one genus of the family occurs in North America. This genus, Helicopsyche, is widespread and normally associated with flowing water, but can also be found in the littoral zone of lakes and hot springs. Food consists of periphyton and plant and animal detritus. The larval life span of this genus is the shortest of the tube-case makers found from the study area, lasting from only four to six months. The nectopsychids occur in lakes and slower currents of rivers, either on the bottom substrate or on plants. Food consists of small aquatic organisms, detritus, and plant material.

DIPTERA. The order Diptera is a large and diverse grouping of insects that includes flies, mosquitos, gnats, and midges. The habitats used by dipterans include fresh and marine waters, flowing and standing, shallow and deep, and even seeps of crude petroleum. Some aquatic dipterans, such as mosquitos, buffalo gnats, and horseflies, are important pests in the adult stage, many of which serve as vectors in the spread of diseases such as malaria or encephalitis. In the aquatic environment, dipterans serve as a primary food source for other predaceous insects and fish. Some dipterans produce several generations a year, while most require a full year for complete development.

The Chironomidae are the non-biting midges. They occur in a variety of habitats, including lakes, ponds, and streams. Most of the Chironomidae prefer sluggish or quiet waters. Calopsectra, though, is one genus from this sub-family collected in the study area that is equally at home in rapidly flowing water. Food for members of this family includes detritus and other chironomids.

The Simuliidae are the black flies (also sometimes called buffalo gnats). Adult females of most species are bloodsucking, with some species attacking man. Aquatic larvae are found in fast-flowing areas of streams where they attach themselves to rocks, vegetation, and other objects. They feed on detritus and planktonic algae strained from the water. Larval life lasts from five to seven months, depending on the species.

The Tipulidae, or crane flies, are found in nearly every type of water except deep lakes and the oceans. They occur in both silt-laden and cold, clean mountain streams, around the margins of lakes and ponds, and in patches of algae in the splash zone of waterfalls. Most larvae are detritus feeders, though some are predaceous on other dipterans and oligochaetes. Most tipulid larvae live for about a year, though a few survive for several years.

The Ephydridae are the shore flies that can be found around the shallow margins of lakes and ponds as well as in slow-moving streams and sloughs. Food for members of this family consists of plant detritus and filamentous green algae. Larval life lasts about a year.

The Rhagionidae are the snipe flies and contain only one North American species, Atherix variegata. This species occurs in moderately flowing streams with either gravel- or detritus-strewn bottoms. Atherix is predaceous on small larvae of aquatic insects. Larval life apparently lasts about a year.

The family Muscidae includes the house, stable, and horn flies, and root maggots. While some larvae prefer fast-flowing, clean, gravelly streams, others can be found among detritus in slower-flowing backwater areas. Some are predaceous, feeding on a variety of smaller aquatic insects, while others are detritivorous or herbivorous. The larval stage probably lasts about a year for Muscidae.

Empididae is the family containing the dance flies. The larvae prefer clean gravels or detritus of moderately flowing streams. It preys on smaller aquatic insects. The larval stage probably lasts about a year.

The Tabanidae are the horse and deer flies. Adult females suck blood and serve as vectors for disease transmission in warmblooded vertebrates, including man. The aquatic larvae prey on soft-bodied invertebrates. They are found in the littoral or backwater areas of standing and flowing water. Larval life probably lasts about a year.

The Blephariceridae are the net-winged midges. The larvae prefer moderate- to swift-flowing clean streams, where they feed on periphyton. Little is known about the life cycle of this family, but the larval stage probably lasts about a year.

The Dixidae are a little known group of delicate flies. The larvae occur along the margins of rocks or floating branches. Food is thought to consist of microscopic organisms in the water surface film.

HEMIPTERA. The Hemiptera are the true bugs. They are associated with a variety of aquatic habitats, including saline ponds and hot springs. Representatives from two families were collected from the study area.

Ambrysus mormon, of the family Naucoridae, is abundant throughout Northern California in clear, well-oxygenated waters, particularly those with gravel bottoms. Typically an inhabitant of streams, this species can also be found along the margins of lakes and ponds. Both larvae and adult are aquatic. Both are predaceous, sucking the juices from prey which include other insects, small fish, and tadpoles. The life cycle is completed in one year.

The _Corixidae_ are the water boatmen, named for their oar-like swimming appendages. Members of this family live in a variety of habitat types, with species specific preferences. They can be found in brackish or fresh waters, including sewage oxidation ponds. Food consists of detrital material and small organisms taken from bottom muds. Adults overwinter, and the life cycle is completed in a year.

MEGALOPTERA. Included in the Megaloptera are the alderflies (Sialidae) and dobsonflies (Corydalidae). Larvae are aquatic, but eggs, pupae, and adults are terrestrial. Sialis is the only California genus of alderfly. The larvae are found only in well-aerated standing and flowing waters. In streams, this genus prefers the back eddies where allochthonous debris accumulates. The larvae prey on other small insects. Larval life lasts from one to two years.

The dobsonflies are also called hellgrammites, and as adults resemble adult stoneflies. Larval dobsonflies, though, differ drastically in structure from stonefly nymphs. Dobsonfly larvae are very aggressive, attacking anything they can handle, including small fish and other dobsonfly larvae. They prefer coarse or rubble-strewn stream bottoms, though they occasionally are found on mud bottoms in both permanent and intermittent streams. Larval life lasts from two to five years, depending on the species.

MOLLUSCA. The Mollusca are composed of two classes, the Gastropoda (univalve molluscs or snails) and the Pelecypoda (bivalve molluscs or mussels and clams). The gastropods are found in a wide variety of aquatic environments, their distribution determined by water quality, geographical, physical, and nutritional influences. The dominant water quality determinants are water hardness and oxygen level. Soft waters contain far fewer species than hard waters. Snails are rare in waters having a pH of less than 6.2. All snails require high dissolved oxygen levels for respiration and are therefore rare in oxygen-deficient polluted waters and deeper parts of eutrophic lakes. While most gastropods are vegetarians that feed on periphyton, some, like Physa and Lymnaea, are omnivorous and feed on periphyton as well as dead animal and plant detritus.

Clams and mussels also occur in a wide variety of aquatic environments. The Sphaeriidae are the only group of bivalves that occur in small creeks in addition to larger rivers and lakes. These organisms require stable gravel, mud, or sand substrates in addition to the water quality parameters required by the gastropods. Food is obtained by filtering small planktonic animals, algae, and detritus from water circulated through the siphons. Turbid waters cause clogging of this filtering mechanism.

ANNELIDA. Freshwater segmented worms (Annelida) comprise two classes, the Oligochaeta (aquatic earthworms) and Hirudinea (leeches). The aquatic earthworms have the same structure and function of their terrestrial counterparts. They are found in a variety of habitat types, including the mud and debris of stagnant or clean pools, ponds, lakes, and streams, and in masses of algae. Feeding occurs by ingesting quantities of the mud or organic substrate and digesting the organic portion. Most species of aquatic earthworms can thrive under low oxygen conditions.

The leeches are generally associated with bloodsucking activities, but not all obtain their nourishment in this fashion. Several are general predators feeding on small insects, or detritivorous. Glossiphonia is carnivorous and feeds on snails, oligochaetes, and small insects. Dina is primarily a scavenger of dead animal matter, but also preys on small invertebrates and may take a blood meal from fish, frogs, and humans. Leeches occupy a variety of habitats exhibiting few species specific preferences. Most species are found in warm, protected shallows among stones, plants, or debris. The Glossiphonidae and Erpobdellidae, however, also live in swift streams and are somewhat tolerant of pollution. About the only habitat that is not favorable for leech survival is one with a pure mud or clay bottom since these provide no substrate to which the leeches may adhere. Leeches probably live for several years, under favorable conditions.

PLATYHELMINTHES. The Phylum Platyhelminthes includes tapeworms, flukes, and flatworms. Only flatworms of the family Planaridae were collected from the Pit River study area. The flatworms were identified as belonging to the genus Dugesia. Species identification is desirable due to species specific habitat preferences, but this was not possible due to the lack of information concerning western forms. Members of the genus Dugesia can be taken in a variety of habitats that include rivers, springs, lakes, caves, and brackish water as long as there is suitable substrate for attachment. Planarians feed on the soft tissues of living or dead animal matter. Life lasts from a few weeks to several years, depending on the species.

NEMATODA. The nematodes are the roundworms. They are found just about everywhere there is fresh water. They are found in gravels, vegetation, and detritus. Nematodes feed on plant and animal detritus and living plants and animals on which they either are predaceous or parasitic, depending on the species. Anaerobic conditions can be tolerated up to a few weeks by the active nematode, and indefinitely by the egg. Life lasts up to several years depending on the species.

ARACHNOIDEA. The arachnids include the spiders, scorpions, and ticks. One of the few groups of these organisms to become adapted to the freshwater ecosystem is the Hydracarina, or water mites. Found in most fresh waters, they are most abundant in the littoral zones of ponds and lakes among aquatic vegetation. Larval mites parasitize aquatic insects, especially stoneflies, dragonflies, true flies, and true bugs. Adult mites are free-living, but prey on small insects, worms, or larger aquatic animals. The life cycle is completed in about a year.

CRUSTACEA. Crustacea collected from the study area include scuds (Amphipoda), sowbugs (Isopoda), and crayfish (Decapoda). Freshwater amphipods occur in a wide variety of nonpolluted habitat types among vegetation, detritus, and stones. An abundance of dissolved oxygen is an environmental necessity. Amphipods are omnivorous scavengers, feeding on plant and dead animal materials. The life span is about a year.

Most isopods are terrestrial. The few aquatic groups are found in springs and streams. Few are found in ponds and lakes. Isopods can be found beneath rocks and amongst vegetation and debris in unpolluted streams. They are scavengers, eating dead and injured aquatic animals and both green and decaying plant materials.

The decapods are widely distributed in a variety of habitats that include most types of running water ponds, lakes, sloughs, swamps, and wet meadows. Hydrophytes, logs, large stones, or burrows in the mud provide shelter. Aquatic vegetation and dead animal material provide food. *Astacus* lives for two to three years.

Community Associations

North Fork Pit River (A-1-2280.00). The benthic population at this station underwent radical fluctuations in numbers of organisms and species during the different seasons of the year (Table 1). Populations and species would generally build to maximum levels by late summer, but plummet to minimum levels by mid-winter. This pattern is also reflected in the species diversity indices, except in the July 1979 sample. The general lack of predators, especially caddisflies, apparently allowed higher than usual populations of chironomids to develop, thus unbalancing the distribution of organisms among the species. The probable cause of the population and species fluctuations is washout of organisms from the small gravels substrate by high winter streamflows. The diversity values are generally in the fair range, due primarily to the overall richness of species since the organisms were unevenly distributed, as reflected by the equitability values.

The benthic community was dominated by organisms relying on the collector mode of food gathering, using modified appendages and various nets to strain food items from the water or gathering bits of detritus lodged amongst the substrate. Some burrowers, requiring a somewhat silty or loose but non-shifting substrate, were present, as were some scrapers that rely on periphyton growth. The periphyton, in turn, require relatively clean gravel or plant substrate for growth. Predatory organisms were generally not abundant, especially during the summer of 1979. The primary population controlling mechanism, therefore, appears to be washout from winter rains or snowmelt.

South Fork Pit River (A-1-4010.00). Very few organisms and relatively few species were collected from the South Fork Pit River station. This station is characterized by generally silty conditions, with large irregularly shaped rocks and concrete and smaller gravels, unevenly distributed. Variations in types and quantities of organisms collected could be as much associated with differences in area of sample collection between sampling dates as with environmental fluctuations. Greater sampling effort would be required to determine the causes of the fluctuations. Diversity values ranged from low to fair, and appear to be influenced for the most part by more equitable distribution of organisms among the different species than at the previous station.

The predominant functional group at this station was the collectors associated with bottom silts or detritus. Scrapers were present in fewer numbers, probably wherever suitable stable substrate projected above the mud substrate and was free of silt. So few predators were present that these types of organisms have an insignificant role in shaping community structure. The primary determinant of structure at this station is probably silt loads of inflow.

Pit River Near Canby (A-1-1680.00). Wide fluctuations in types and quantities of organisms occurred at this station over time which appears unrelated to season. The substrate is characterized by large cobbles and boulders somewhat cemented with few smaller gravels but some silt. Water discharge is irregular, especially during the irrigation season, undergoing sometimes rapid and highly fluctuating changes due to upstream diversions and accretions. Both the nature of the substrate and water discharge variations could cause significant variations in the types and number of organisms collected. Differences in microhabitat sampled between collections and stranding or concentration of organisms due to fluctuating water levels may be the factors responsible for the differences found. Diversity values ranged from fair to high, due at different times to both species richness and organism distribution among the species.

Collectors again were the dominant trophic group, but scrapers were also well represented. Large amounts of organic detritus from upstream sources probably give collectors a much more available food source. Though much more suitable substrate were present at this station than at previous stations, rather high turbidity levels probably limit the amount of periphyton available to the scraper community. Predators were adequately represented, predominantly by the Odonata, which probably thrive under the slightly silty conditions. These organisms may have been under-represented in the samples as evidenced by the large number of exuvia and adults that could be seen, primarily due to the nature of the sampled bottom substrate with its cobbles and boulders.

Pit River Above Hat Creek (A-1-1200.00). This station was sampled only in July, 1977. At that time, a somewhat low number of organisms was found, but these were from a large number of different genera. The large number of genera and a fair distribution of organisms among the genera led to a rather high species diversity index value.

Scrapers were as important as collectors in determining the trophic structure at this station. Few predatory species were present. Only one significant scavenger species, Dina, was present. Both depositional and erosional preferring species were present, though there were more of the former than latter.

Hat Creek Below H.P.H. #2 (A-1-6140.00). Organism numbers and species tended to increase into the fall and decline in the winter. The numbers decline did not occur in the spring of 1979 sample, largely due to a large mayfly population. Since these mayflies emerge early in the spring, an abnormally cool or warm winter may cause late or early emergence, respectively. This could dramatically affect numbers of organisms collected, depending on whether many species or others with similar patterns had emerged. Yearly variation in emergence time could be reflected in the total number of organisms and species collected, as reflected by these data. This shows the need to collect samples more often than quarterly to be certain of including all important species and to ascertain population fluctuations. Species diversity index values for this station ranged from fair to moderately high levels.

Benthic samples from this group were dominated by the collectors. A rather large number of predatory species was also present, predominantly composed of stoneflies. The large number of mayflies present probably provided an ample food source for the predatory species. Shredders were represented in the samples to about the same extent as the scrapers, neither being numerous.

Lake Britton Tributaries. In addition to the Pit River and Hat Creek, five smaller tributaries to Lake Britton were sampled: Cayton, Clark, and Burney Creeks, and two major spring flows. These were sampled in July, 1979, just above their confluences with Lake Britton. Cayton Creek was also sampled near its origin. All these smaller tributaries, and especially the two springs, contained relatively few organisms, though from rather diverse groups for such small populations. Diversity index values ranged from poor, with very uneven distribution of organisms among the species at Cayton Creek at its mouth, to rather high diversity and equitability of distribution values at several other stations.

The diversity index value developed for the Cayton Creek at mouth sample is usually associated with pollution in which relatively large numbers of organisms are distributed among only a few species with other species being absent or containing only a few individuals. Disproportionate representation of Lymnaea was responsible for the low diversity and equitability values at this station. It had been noted a couple of weeks before samples were taken that a number of fish and invertebrates were floating dead in Lake Britton at the mouth of Cayton Creek. It was also noted at the time of sample collection that a reddish tinge was present over the substrate. The cause of the mortality and coloration was not determined but could have influenced the diversity at this station.

The other tributary stream samples contained about equal scraper and collector type organisms, with a fair number of predatory species. The species present from these samples are characteristically taken from nonpolluted, unsilted cold water environments.

Pit River Below P.P.H. #1 (A-1-1164.00). A seasonal pattern of greater numbers of organisms and species present during the summer, with declines during the winter seemed evident from the first two years of data, but not from the data collected during the third year of sampling. The rapid fluctuations in water flow from stream regulation by the Pit Power House No. 1 may influence the species diversity and abundance as much as seasonal changes do. Diversity index values were generally in the fair range, though the sample collected in July, 1979, exhibited a rather poor index value. The highly variable water level may be responsible for aberrations by preventing access to sampling sites within the stream due to high flows during the sampling period. Fluctuating flows may also be largely responsible for determining the types of species present, since those occurring would have to be adapted to both deep and shallow water conditions or have sufficient mobility to adjust their depths and avoid being stranded when flows are reduced.

Collector-type organisms dominated the fauna in terms of trophic functioning. Scrapers were nearly as abundant. This reflects the richness of both autochthonous and allochthonous primary production in this portion of the river.

Pit River at Big Bend (A-1-1090). Invertebrate populations generally showed an increase in number of organisms from spring to summer, followed by a decline into the winter. This is largely due to the maturation in the summer of immatures recently hatched from eggs laid by adults emerging in the spring. In the spring months, many of the immatures are too small to be retained by the sampler and do not show up in population estimates. Fall is a period of emergence for many organisms, and these would not show up in samples collected during this period. Winter produces a particularly harsh environment, with many organisms being lost to washout from floodflows. Species diversity, as indicated by the diversity index, was good to excellent for all collection periods, though most often not very equitably distributed among the species present.

Collector-type organisms dominated the community structure, though scrapers were also well represented. The dominance of these organisms reflects the richness of this reach of the Pit River. Large amounts of fine organic material must be suspended or carried in the water column to provide the food supply for the collector organisms. Relatively high autochthonous production of periphyton must be present to support the large scraper populations. This reflects the relatively high nutritive condition of this reach of the river.

Pit River Below Pit Reservoir #7 (A-2-3150). This area provides an extremely harsh and fluctuating environment for lotic macroinvertebrates. The area becomes inundated by Shasta Reservoir when the reservoir becomes full. Declining water levels in summer and fall allow colonization of exposed riffle gravels by organisms able to colonize rapidly. Colonization may occur from drift of organisms dislodged from upstream sources, or from adults that lay eggs in the newly exposed riffles. But to successfully reproduce, organisms must complete their life cycle before the reservoir fills again. Relatively few species were found in the area, though fairly large numbers of organisms were present in the 1977 samples. This is undoubtedly due to the prolonged availability of riffles caused by lowered water levels in Shasta Reservoir.

Collector-type organisms dominated the fauna. A few scraper species were present, but there were virtually no predators or shredders. Species diversity was low to medium. Equitability was low when greater numbers of species were present, probably due to a few rare species which were able to colonize the riffles during the drought. Equitability was very high when very few species occurred and each was represented by few individuals.

APPENDIX G

BENTHIC ORGANISM DATA

G1 - Pit River Drainage Benthic Macroinvertebrate Biomonitoring Data Summary

G2 - Monitoring Data

TABLE G1

PIT RIVER DRAINAGE
BENTHIC MACROINVERTEBRATE
BIOMONITORING DATA SUMMARY

(N = Average number of individuals per square meter,
$\bar{d}$ = Species diversity index, e = Equitability index)

Station	Number	Date	N	Genera	$\bar{d}$	e
North Fork Pit River	A-1-2280.00	7/27/77	3 069.0	27	3.05	0.43
		10/ 4/77	2 889.7	30	3.03	0.38
		4/11/78	48.3	6	1.83	0.77
		7/11/78	1 503.9	18	2.29	0.37
		10/26/78	2 766.4	22	2.97	0.50
		2/ 5/79	169.4	12	2.74	0.76
		7/25/79	591.6	19	2.52	0.41
		12/ 5/79	1 154.3	19	2.24	0.33
South Fork Pit River	A-1-4010.00	7/27/77	411.9	12	2.14	0.49
		10/ 4/77	603.9	14	1.52	0.26
		4/ 6/79	277.1	10	2.17	0.60
		7/25/79	143.9	7	1.99	0.75
		12/ 6/79	514.2	19	3.13	0.65
Pit River near Canby	A-1-1680.00	7/14/77	4 364.9	24	2.45	0.31
		7/27/77	1 938.9	27	3.52	0.61
		10/ 4/77	1 358.9	29	3.48	0.55
		4/11/78	427.8	14	2.48	0.54
		7/11/78	223.4	18	3.46	0.88
		4/ 5/79	1 968.2	25	3.15	0.50
		7/25/79	585.3	12	2.95	0.90
		12/ 6/79	414.3	14	2.49	0.55
Pit River above Hat Cr.	A-1-1200.00	7/14/77	1 297.3	23	3.40	0.65
Hat Creek below HPH #2	A-1-6140.00	7/14/77	9 340.3	23	2.07	0.24
		7/28/77	3 363.7	22	2.49	0.35
		10/ 5/77	2 914.2	33	3.02	0.35
		4/12/78	1 412.6	18	3.13	0.69
		7/11/78	2 715.2	22	3.36	0.67
		10/26/78	960.4	20	3.59	0.87
		4/ 5/79	3 612.4	18	2.73	0.51
		8/24/79	2 497.0	20	3.40	0.76
		12/ 6/79	208.4	14	2.94	0.77
Cayton Creek at Mouth	A-1-1191.00	7/26/79	747.9	9	1.11	0.29
Cayton Creek at Origin	A-1-1194.00	7/26/79	649.8	11	2.17	0.54
Clark Creek at Mouth	A-1-1188.00	7/26/79	439.8	16	3.14	0.78
Burney Creek at Mouth	A-1-5000.00	7/26/79	380.7	18	3.34	0.80
West Spring at Mouth	A-1-1195.00	7/26/79	150.6	12	3.06	0.98

TABLE G1 (continued)

Station	Number	Date	N	Genera	$\bar{d}$	e
East Spring at Mouth	A-1-1196.00	7/26/79	86.1	10	2.46	0.75
Pit River below PPH #1	A-1-1164.00	7/28/77	2 148.8	28	3.55	0.60
		10/ 5/77	2 233.3	21	2.67	0.42
		7/11/78	2 595.3	24	2.68	0.37
		10/26/78	1 357.6	20	2.75	0.47
		4/ 5/79	670.1	20	2.92	0.53
		7/26/79	1 646.8	12	1.49	0.29
		12/ 6/79	1 095.3	13	2.30	0.51
Pit River at Big Bend	A-1-1090.00	7/28/77	2 886.9	33	3.69	0.56
		10/ 5/77	1 607.7	30	3.59	0.58
		7/12/78	2 854.9	22	3.03	0.52
		10/26/78	1 648.2	22	3.03	0.52
		4/ 6/79	741.2	24	3.32	0.59
		7/27/79	1 091.0	21	3.35	0.69
		12/ 6/79	686.2	23	3.36	0.64
Pit River below Pit Res. #7	A-2-3150.00	7/28/77	1 545.9	14	1.89	0.34
		10/ 5/77	1 816.4	14	2.44	0.53
		10/26/78	448.0	11	1.54	0.33
		7/27/79	398.2	7	2.33	0.97
		12/ 6/79	79.4	6	2.48	1.27

LAKE BRITTON TRIBUTARIES

	A1 5000.00 Burney Cr. at Mouth 7-26-79	A1 1195.00 West Spr. at Mouth 7-26-79	A1 1196.00 East Spr. at Mouth 7-26-79	A1 1191.00 Cayton Cr. at Mouth 7-26-79	A1 1194.00 Cayton Cr. at Origin 7-26-79	A1 1188.00 Clark Cr. at Mouth 7-26-79
Ephemeroptera						
Heptagenia	1	16	1	1		
Iron	1		32			20
Isonychia velma	3					
Paraleptophlebia		5				
Ephemerella attenella						5
E. cognata	9					
E. coloradensis	44	22	1			
E. heterocaudata			5			
Baetis	88	16	27	1	5	24
Plecoptera						
Calineuria californica			3			7
Doroneuria baumanni	9	43				
Sierraperla cora		1				
Yoroperla brevis	4	1	3			
Isoperla					11	
Pteronarcys californica	4			3		
Coleoptera						
Eubrianax				109		61
Narpus		11	5	5		16
Diptera						
Chironominae	24					38
Calopsectra						28
Simulium						7
Hexatoma						4
Antocha	23					159
Atherix variegata					5	
Tabanidae						1
Trichoptera						
Hydropsyche	4				11	16

LAKE BRITTON TRIBUTARIES (cont'd)

	A1 5000.00 Burney Cr. at Mouth 7-26-79	A1 1195.00 West Spr. at Mouth 7-26-79	A1 1196.00 East Spr. at Mouth 7-26-79	A1 1191.00 Cayton Cr. at Mouth 7-26-79	A1 1194.00 Cayton Cr. at Origin 7-26-79	A1 1188.00 Clark Cr. at Mouth 7-26-79
Glossosoma	32			51	75	9
Brachycentrus	70					
Rhyacophila sp. #1	43	11				36
Rhyacophila sp. #2	8	3			5	
Megaloptera						
Dysmicohermes crepusculus	4		3			
Mollusca						
Gastropoda						
Lymnaea				575	328	
Lanx	8					
Annelida						
Lumbriculidae		16	5		124	8
Betracobdella					4	
Dina				1	11	
Platyhelminthes						
Dugesia		5		1		
Miscellaneous						
Hyalella azteca					70	
N	379	150	85	747	649	439
	18	12	10	9	11	16
$\bar{d}$	3.3	3.1	2.5	1.1	2.2	3.1
e	0.80	0.98	0.75	0.29	0.54	0.78

A1 1090.00

PIT RIVER AT BIG BEND

	7-28-77	10-5-77	7-12-78	10-26-78	4-6-79	7-27-79	12-6-79
Ephemeroptera							
Heptagenia						11	
Iron	81		156			43	
Rhithrogena				8	89		16
Isonychia velma	19				16	59	
Ephemerella attenella						3	
E. coloradensis				19			
E. hecuba						7	
E. levis	19		22		39		16
E. micheneri	1					11	
E. proserpina		1					4
Tricorythodes fallax	1	3		5			
Baetis	187	42	748	194	166	248	20
Plecoptera							
Calineuria californica	7		1	9		48	
Hesperoperla pacifica		4	1	4			3
Arcynopteryx				1			5
Isoperla bilineata					16		
Hastaperla							14
Pteronarcys californica	1	3	4			4	
Nemoura	7						
Taenionema					38		
Taeniopteryx				3			
Odonata							
Anisoptera							
Gomphus		8					
Octogomphus	7	5	3	1	3		5
Ophiogomphus		9					
Coleoptera							
Eubrianax		12	16	1			
Psephenus	83	9	22		8		4
Ampumixis							5

A1 1090.00

PIT RIVER AT BIG BEND (cont'd)

	7-28-77	10-5-77	7-12-78	10-26-78	4-6-79	7-27-79	12-6-79
Cleptelmis					5		8
Lara		3					
Narpus	230	211	270		8		
Gyrinus				92			
Lepidoptera							
Parargyractis	1	108			1		11
Diptera							
Chironominae	304	100		260	159	199	48
Calopsectra	78	1		151	1	11	
Simulium	194		700				
Antocha	44		32	11	3	81	24
Atherix variegata		8		3	1		
Blephericera	1		97				
Dixa	1						
Muscidae				1			
Trichoptera							
Hydropsyche	694	218	334	283	24	199	63
Cheumatopsyche	3						
Hydroptila	140			324	9	4	159
Ceraclea		3					
Leucotrichia		18					
Glossosoma	4			8	7		
Dicosmoecus			1			16	
Brachycentrus	367	268	231		20	4	
Helicopsyche borealis	4	46			1		
Rhyacophila						22	7
Chimarra						32	
Desmona			8				
Nectopsyche		11		265	112	24	198
Hemiptera							
Corixidae	14						

A1 1090.00

PIT RIVER AT BIG BEND (cont'd)

	7-28-77	10-5-77	7-12-78	10-26-78	4-6-79	7-27-79	12-6-79
Mollusca							
Gastropoda							
Physa	4						
Lymnaea auricularia	20		11				
Parapholyx	67	184					12
Lanx		174			3		9
Goniobasis		1					
Pelecypoda							
Sphaerium			1				
Annelida							
Lumbriculidae	59	5	125	1	8	65	38
Lumbriculus	47	19					
Glossiphonia		1					
Dina		1	1	4			11
Platyhelminthes							
Dugesia	195	132	70				5
Miscellaneous							
Hydracarina	1				4		
Nematoda						1	
N	2 885	1 608	2 854	1 648	741	1 092	685
	33	30	22	22	24	21	23
$\bar{d}$	3.7	3.6	3.0	3.0	3.3	3.4	3.4
e	0.56	0.58	0.52	0.52	0.59	0.69	0.64

A1 1164.00

PIT RIVER BELOW PPH #1

	7-28-77	10-5-77	7-11-78	10-26-78	4-5-79	7-26-79	12-6-79
Ephemeroptera							
Pseudocloeon							5
Heptagenia					1		
Iron	14		101		9		
Ephemerella coloradensis					8		
E. heterocaudata	24						
Tricorythodes fallax	3		22				
Baetis	202	218	258	74	307	16	7
Plecoptera							
Hesperoperla pacifica	48	4	12	1	7	5	11
Pteronarcys californica	202	55	79	42	42	27	27
Odonata							
Zygoptera							
Argia		1		1			
Coleoptera							
Narpus	207	30	16				
Haliplidae	5						
Lepidoptera							
Parargyractis	38	16	1	15	1		
Diptera							
Chironominae	100	47		28	63	27	43
Calopsectra				15		27	
Simulium	5		5			5	
Pedicia	19						
Antocha		1	23		1		
Atherix variegata	50	7	5	7	4		7
Blephariceria	8						
Trichoptera							
Hydropsyche	619	592	332	655	53	275	484
Cheumatopsyche			28	145			
Ceraclea					24		

A1 1164.00

PIT RIVER BELOW PPH #1

	7-28-77	10-5-77	7-11-78	10-26-78	4-5-79	7-26-79	12-6-79
Leucotrichia		3					
Glossosoma			43		8		
Amiocentrus	3						
Brachycentrus	143	813	1 335	151	22	1 184	307
Rhyacophila sp. #1	5						
Rhyacophila sp. #2	8		30			11	
Mollusca							
Gastropoda							
Physa				1			
Lymnaea	94	3	23				
Gyraulus deflectus		9					
Parapholyx		217	22	65	42		43
Lanx	46	62	14	35	7	16	5
Goniobasis			5	8	12		
Pelecypoda							
Pisidium		4					
Sphaerium	24		42	50	14	27	113
Annelida							
Lumbriculidae	215	121	120	7		27	39
Dina			1	9			
Platyhelminthes							
Dugesia	5	5					
Miscellaneous							
Hydracarina	8						
Hyalella azeteca	5	1	12	5	1		
Asellus	46	24	66	43	44		4
Nematoda	3						
N	2 149	2 233	2 595	1 357	670	1 647	1 095
	28	21	24	20	20	12	13
$\bar{d}$	3.6	2.7	2.7	2.8	2.9	1.5	2.3
e	0.60	0.42	0.37	0.47	0.53	0.29	0.51

A1 1200.00

PIT RIVER ABOVE HAT CREEK

	7-14-77
Ephemeroptera	
Tricorythodes fallax	5
Baetis	43
Plecoptera	
Claassenia sabulosa	5
Pteronarcys californica	5
Odonata	
Zygoptera	
Argia	5
Coleoptera	
Narpus	156
Lepidoptera	
Parargyractis	27
Diptera	
Chironominae	328
Calopsectra	43
Antocha	5
Trichoptera	
Hydropsyche	135
Ceraclea	5
Glossosoma	11
Amiocentrus	5
Brachycentrus	81
Helicopsyche borealis	32
Hemiptera	
Corixidae	11

A1 1200.00

PIT RIVER ABOVE HAT CREEK

		7-14-77
Mollusca		
Gastropoda		
Physa		5
Parapholyx		215
Lanx		108
Pelecypoda		
Pisidium		5
Annelida		
Dina		54
Miscellaneous		
Asellus		5
	N	1 294
		23
	$\bar{d}$	3.4
	e	0.65

A1 1680.00

PIT RIVER NEAR CANBY

	7-14-77	7-27-77	10-4-77	4-11-78	7-11-78	4-5-79	7-25-79	12-6-79
Ephemeroptera								
Hexagenia limbata californica		7	3					
Heptagenia						4		
Iron	75				11			
Rhithrogena				1	14			
Choroterpes terratoma		16						
Paraleptophlebia	124							
Ephemerella levis	108	182	4		24		184	
E. micheneri	102	43						
Tricorythodes fallax	124	62	168	9	8		35	
Baetis	646	487	69	149	50	518	3	7
Plecoptera								
Isoperla bilineata						12		
Odonata								
Anisoptera								
Ophiogomphus	3	22	4					
Hetaerina			3			1		
Zygoptera								
Argia		40	70	3	5	3	3	4
Coleoptera								
Psephenus	11	11	14			55	43	3
Dubiraphia	3	11	8			5		
Narpus	59	113	53	4	11	109	24	
Lepidoptera								
Parargyractis	65	219	36		1	1		
Diptera								
Chironominae	100	85	78			36	51	135
Calopsectra						1		
Simulium	67	22	11	11	5	159		5
Hexatoma			1					

A1 1680.00

PIT RIVER NEAR CANBY

	7-14-77	7-27-77	10-4-77	4-11-78	7-11-78	4-5-79	7-25-79	12-6-79
Trichoptera								
Hydropsyche	2 476	388	439	51	43	440	92	5
Hydroptilidae		5						
Leucotrichia	19	4	7					
Glossosoma	5	3						
Dicosmoecus						5		
Amiocentrus	8				1	16		
Brachycentrus	11	15	5		4			5
Helicopsyche borealis	250	26	124	4	5	285	8	4
Nectopsyche	48	38	11		5	24		7
Hemiptera								
Ambrysus mormon	3	14				34	19	3
Mollusca								
Gastropoda								
Physa		4						
Lymnaea				11	24			27
Lymnaea auricularia			43					
Gyraulus deflectus			55	5				145
Ferrissia			1					
Amnicola		59						
Margaritifera falcata						1		
Pelecypoda								
Pisidium	11		19			19		
Sphaerium	3	31	4					
Annelida								
Lumbriculidae			109	144	7	42		
Glossiphonia						8		
Dina			5	1		9	44	11
Platyhelminthes								
Dugesia	46	28	3		3	8		

A1 1680.00

PIT RIVER NEAR CANBY

	7-14-77	7-27-77	10-4-77	4-11-78	7-11-78	4-5-79	7-25-79	12-6-79
Miscellaneous								
Hydracarina		7	4	23	1			
Hyalella azteca			9	11		171	79	54
N	4 367	1 942	1 360	427	222	1 966	585	415
	24	27	29	14	18	25	12	14
$\bar{d}$	2.4	3.5	3.5	2.5	3.5	3.1	3.0	2.5
e	0.31	0.61	0.55	0.54	0.88	0.50	0.90	0.55

A2 3150.00

PIT RIVER BELOW PIT RESERVOIR #7

	7-28-77	10-5-77	10-26-78	7-27-79	12-6-79
Ephemeroptera					
Ephemerella levis			1		
E. micheneri		1			
Tricorythodes fallax	4	51		22	
Baetis	38	149	5		12
Coleoptera					
Psephenus	1				
Lepidoptera					
Parargyractis		26			
Diptera					
Chironominae	998	712	334	140	
Calopsectra		3			
Simulium	1	43	8		
Antocha				16	
Trichoptera					
Hydropsyche	32	583	4		22
Hydroptila		15			
Ceraclea	7				
Glossosoma	9				
Lepidostoma			8		
Mollusca					
Gastropoda					
Physa	46	42	23	16	
Parapholyx	96	74			
Annelida					
Lumbriculidae	233		19	43	16
Dina	23		7		14

A2 3150.00

PIT RIVER BELOW PIT RESERVOIR #7

	7-28-77	10-5-77	10-26-78	7-27-79	12-6-79
Miscellaneous					
Hydracarina		4			
Hyalella azteca	23	47	4	38	5
Asellus	35	67	35	124	11
N	1 546	1 817	448	399	80
	14	14	11	7	6
$\bar{d}$	1.9	2.4	1.5	2.3	2.5
e	0.34	0.53	0.33	0.97	1.27

A1 4010.00

SOUTH FORK PIT RIVER AT ALTURAS

	7-27-77	10-4-77	4-6-79	7-25-79	12-6-79
Ephemeroptera					
Hexagenia limbata californica	3	7			1
Rhithrogena					43
Ameletus					32
Isonychia velma			4		
Choroterpes terratoma				4	
Paraleptophlebia		1	4		
Ephemerella levis		1			3
Caenis	65	100	31		14
Tricorythodes fallax			7	27	3
Baetis		7		11	75
Plecoptera					
Arcynopteryx					5
Odonata					
Anisoptera					
Zoniagrion exclamationis		7	26		
Zygoptera					
Argia	3	7			
Coleoptera					
Psephenus	3				
Narpus	3		11		5
Diptera					
Chironominae	57	9	151	22	94
Calopsectra					5
Simulium			3		8
Trichoptera					
Hydropsyche					43
Glossosoma					3
Polycentropus	5				
Brachycentrus			3		5
Helicopsyche borealis					8

A1 4010.00

SOUTH FORK PIT RIVER AT ALTURAS

	7-27-77	10-4-77	4-6-79	7-25-79	12-6-79
Mollusca					
Gastropoda					
Lymnaea auricularia	3				
Gyraulus deflectus		3			
Pelecypoda					
Sphaerium	40	5		3	
Annelida					
Lumbriculidae	218	431		75	151
Miscellaneous					
Hydracarina		1			
Hyalella azteca	5	24	39		14
Astacus leniusculus	8	1		3	1
N	413	604	279	145	513
	12	14	10	7	19
$\bar{d}$	2.1	1.5	2.2	2.0	3.1
e	0.49	0.26	0.60	0.75	0.65

A1 6140.00

HAT CREEK BELOW HAT POWERHOUSE #2

	7-14-77	7-28-77	10-5-77	4-12-78	7-11-78	10-26-78	4-5-79	8-24-79	12-6-79
Ephemeroptera									
Iron	86	3	3	8	32				
Paraleptophlebia	110		3		5		8		
Ephemerella cognata		97							
E. coloradensis	573	30		30	16				
E. levis	143		109		11	51	1 320	62	12
E. micheneri	5 740	3	16		272				
E. proserpina			8	16		7	44		4
Tricorythodes fallax			692						
Baetis	1 542	16	65	77	463	184	479	608	
Plecoptera									
Calineuria californica	14	3	3	3					3
Claassenia sabulosa	11		1		4	11		5	5
Hesperoperla pacifica									11
Yoroperla brevis			1						
Arcynopteryx				265	4				
Isoperla bilineata	401						523		
Hastaperla		5							
Pteronarcys californica	3			1	14	9			3
Nemoura		57	20		194				
Odonata									
Anisoptera									
Octogomphus								5	
Ophiogomphus	3	8	1		5	18	1		1
Coleoptera									
Narpus	127	19	42	22	18	53	11	127	
Lepidoptera									
Parargyractis			3						
Diptera									
Chironominae	218	3	47	393		74	522	164	
Calopsectra							78		

A1 6140.00

HAT CREEK BELOW HAT POWERHOUSE #2

	7-14-77	7-28-77	10-5-77	4-12-78	7-11-78	10-26-78	4-5-79	8-24-79	12-6-79
Simulium		1 480	53		248	11		406	
Pedicia	3								
Antocha								83	
Atherix variegata	3	3							
Empidae			1						
Trichoptera									
Hydropsyche	78	105	362	192	269	172	344	441	66
Hydroptila			1				1		
Glossosoma	3		5		118	50		51	
Dicosmoecus	46								
Amiocentrus	108		14						
Brachycentrus				22		16		89	11
Micrasema					145		159	16	
Rhyacophila sp. #1		129	57						
Rhyacophila sp. #2				57		20	38	81	4
Lepidostoma			9						
Wormaldia								57	
Nectopsyche			3						
Hemiptera									
Corixidae			1		5			16	
Mollusca									
Gastropoda									
Physa								32	
Lymnaea			1 052	79	646	96	24	143	
Lymnaea auricularia	46	880							
Lanx				1					
Goniobasis	51		4		20	24			
Pelecypoda									
Pisidium		8	44	121	167	110	36		
Sphaerium									27

A1 6140.00

HAT CREEK BELOW HAT POWERHOUSE #2

		7-14-77	7-28-77	10-5-77	4-12-78	7-11-78	10-26-78	4-5-79	8-24-79	12-6-79
Annelida										
Lumbriculus			180	53	110	24	24		48	48
Dina		24	22	24	11	35	5	4	3	3
Platyhelminthes										
Dugesia			283	110	5		24	16	59	11
Miscellaneous										
Hyalella azteca		11	24	43			1			
Asellus			8	65				3		
	N	9 344	3 366	2 915	1 413	2 715	960	3 611	2 496	209
		23	22	33	18	22	20	18	20	14
	$\bar{d}$	2.1	2.5	3.0	3.1	3.4	3.6	2.7	3.4	2.9
	e	0.24	0.35	0.35	0.69	0.67	0.87	0.51	0.76	0.77

A1 2280.00

NORTH FORK PIT RIVER

	7-27-77	10-4-77	4-11-78	7-11-78	10-26-78	2-5-79	7-25-79	12-5-79
Ephemeroptera								
Hexagenia limbata californica		3						
Cinygmula	24							
Heptagenia				71				
Iron				39				
Isonychia velma				61				
Choroterpes terratoma		1					83	
Paraleptophlebia		1						
Emphemerella coloradensis						1		
E. levis				46				
Caenis			1					
Tricorythodes fallax	307		1		346	3	66	22
Baetis	74	305	9	823		32	63	59
Plecoptera								
Calineuria californica				30				
Isogenus					15			
Isoperla bilineata							1	
Nemoura		8						3
Taeniopteryx					11	8		
Odonata								
Anisoptera								
Ophiogomphus		1						
Zygoptera								
Argia	1	26	1	1	1			
Coleoptera								
Psephenus	7	7			69		1	
Cleptelmis	7	4						
Narpus	43	63		5		1		
Helichus		5						
Hydrophilidae	3							
Laccobius	1							
Dytiscidae	4							3

A1 2280.00

NORTH FORK PIT RIVER

	7-27-77	10-4-77	4-11-78	7-11-78	10-26-78	2-5-79	7-25-79	12-5-79
Lepidoptera								
Parargyractis	54	16						
Diptera								
Chironominae	238	59	26		458	43	285	689
Calopsectra					12			
Simulium		23	9	211	694	48	5	83
Hexatoma	1	22		3	5		3	7
Brachydeutera					4			
Blephericera				1				
Trichoptera								
Hydropsyche	194	296		172	529	7		15
Hydroptila					11			3
Dicosmoecus	4							
Limnephilus								3
Amiocentrus						1		
Brachycentrus				1			5	
Helicopsyche borealis	401	624		1	308	9		16
Nectopsyche	31	458		3	151	4	4	
Hemiptera								
Ambrysus mormon	366	74		18	1		31	
Corixidae	38						1	
Megaloptera								
Sialis	5	8					1	1
Mollusca								
Gastropoda								
Physa	14	1			12		7	11
Lymnaea					4		1	
L. auricularia	14	16						
L. columella	7	11						
L. stagnalis		1						
Gyraulus deflectus		7			14			5
Goniobasis								4

A1 2280.00

NORTH FORK PIT RIVER

	7-27-77	10-4-77	4-11-78	7-11-78	10-26-78	2-5-79	7-25-79	12-5-79-
Pelecypoda								
Pisidium	27	30						11
Annelida								
Lumbriculus	36	19			5		4	92
Dina					3		3	
Platyhelminthes								
Dugesia	1 148	797		9	109		8	16
Miscellaneous								
Hydracarina		3						
Hyalella azteca	22	1		8	5	11	18	113
N	3 071	2 890	47	1 503	2 767	168	590	1 156
	27	30	6	18	22	12	19	19
$\bar{d}$	3.0	3.0	1.8	2.3	3.0	2.7	2.5	2.2
e	0.43	0.38	0.77	0.37	0.50	0.76	0.41	0.33

APPENDIX H

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